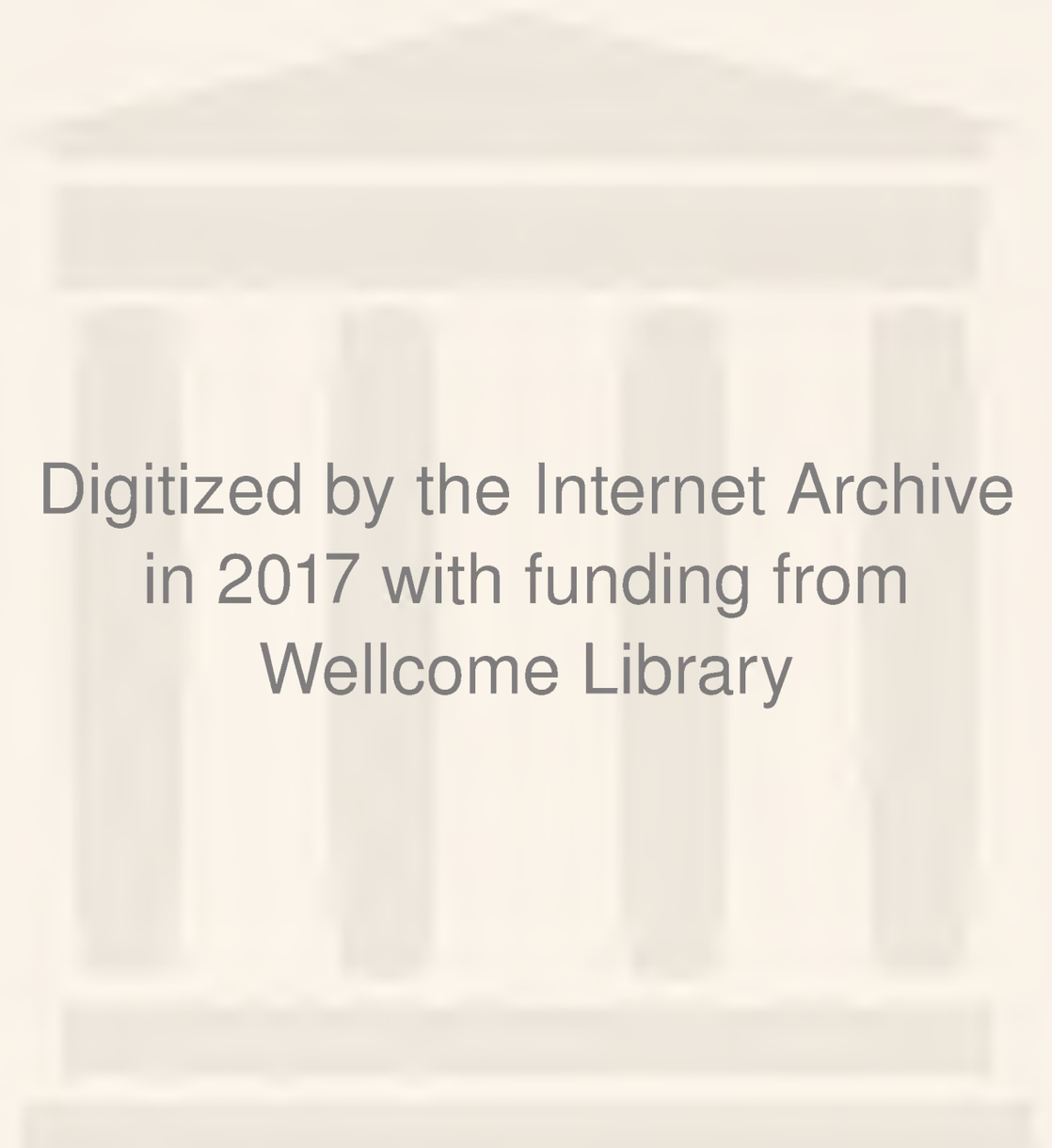


SYPHILIS SIVE MORBUS HUMANUS

Theodoricus Ulsenius Phrisius Medicus Universis litterarum Patronis in Epidimicam scabiem que passim toto orbe grassatur vaticinium dicat.

Nuper inauditam scabiem mutabile vulgus
Clamat: et arbitrio docte stipendia turbe
Murmurat agricolam cimice scalpere Megera
Erecitat, ignote nemo succurrere pesti
Nemo salutiferam novit conferre medelam
Inde neces dum nostra rotat cordo Empiricis
Impunes pagis medicorum contio discors.
Talibus ut ... populi clamoribus: ecce
Fessa soporiferam deposcunt membra quietem
Libera mens dum speculatur in ethere phebum
Visus adesse deus qualis Cumea sacerdos
Intonat Eneadum dum fortia corda remollit:
Non ego retrogrados flecto gramine gressus
Roscida signifero quamquam soror evolat axe
Sed certus metam gradibus pervertor eandem
Ipse deum medius moderator lucis et auctor
Carminis in oculos freqns depromo sagittas
Plectra lyramque gero laurus mihi tempora nectit.
Ne tamen insontem pergat lacerare Camenam
Neu Parnasicolas solito depravet honore
Vulgus iners ventosa cohors: arcana recludam
Que sinit Altitonans sacra atque infecta deorum
Pandere Apollineam et cunctis prestare salutem
Munus utrumque meum est herbis ac carmine sano;
Vidimus iratum Mavortis nuper in aula
Stare patrem natosque sadis male succensentem
Quod nimis humano generi indulgere putaret
Egregium Jubar et vitalis numen olympi
Ferre minas falcemque pigram persepe levantem:
Scilicet ille petat Geminos Jovis altera cura
Sanguine spumabit nimio. vertitur improba luto
Sordilego. monstrisque feret turbabit orbem:
Eurystheus dum magnus adest dumque atria tenat
Dira novercales Morsor qui prodidit iras
Atria luce minor Chique que Chelifer ambit
Virosaque nepa none libeamina Sphere;
Hic ubi congressum statuunt ubi pocula ponsi
Nectaris ambrosii: scelus est laudare nocentes,
Salasfe ambiguum genito miscere venenum
Cogitat et sancta Gradivi fedus in ede
Frangere malorum licet meminisse nefanda,
Protinus ignivomam rumor defertur ad aram
Nigraque coniungere flammina personat hydre
Noria continuo meditatus prelia Mavors
Ista licent: Saturnus ait: Sic spernimur istis
Numinibus pigris: et nostra altaria squallet
Sulfure: dum tetricas in ergit thure cucullas
Hoc libelle gerit dum clausa murmurat umbra;
Vix cecinit hec pauca fremens in damna maiplos
Evocat: et celeres frustra retinente Minerva

LICHNICA GENESIS

Urget equos bellumque ciet: calcantur ariste
Almaque vitali fraudatur munere Ceres
Leditur omne genus divum neque te bone Iache
Libera simplicitas vitato flamine mundum
Misceverint superi supos culpare quis ausus?
Semina dira mali corrupto stemmate pendet
Postera progenies ... ... chara priorum.
Haud secus ac silicis cussu scintilla relabens
Crescit in immensum: teneros depascit artus
Sulfur edax: piceoque obnubilat omnia fumo;
Hinc pestes hinc fata pluunt potentia videns
Martia nondum ... scatuit germania mostris
Ut videat natura sagax dissensio circis
Quanta volubilibus tanta est discordia fibris
Cernere sub medias, virusque adiuta resumat
Ausa diu temtare nihil sub pondere tanto
Deficiat: levo ventris cui meta recessu
Per vada secalis pallenti corde lienem
Harmoniam distenta premit tortusque patentis
Emicat hinc bullas ventris inde papellas
Eiaculans ovans. Mentagram viscida Lichne
Feda luce spurco primum contagia pectore;
Crustosis ebri tota Cano, nova semina morbi
Nemo putet celoque sedet mens nescia falli
Ethereo timidos quo furit liber asellos
Fusca bicorporeum de cardine bestia monstrum
Vicera sulfuree vibrabat acumine caude
Orona fugans pesthe montem leta plando;
At quis forte roget que sit medicina doloris?
Est locus alato subnixus in ethera signo
Piniferoque solum Musis non ultima sedes
Sive Helyconem seu Nyssa placet: tranare licebit
Aonios tecum latices: ubi Phusus unus
Lustrat ista Jacturis flama Pignitio ...
Qua secat in precepsa Selvas ubi satyrus viget
Collis: ubi ... inter notissima Francos
Menia Virgineo subqui gens Norica celo;
Hic Geminus deposcat ope mea prima voluptas
Asclepium Hygiamque dabo: modo digna quantis
Sacra locet: placabo deos et innuptam pondera
Antidotumque feram virus emarcescat atrox:
Me duce sic morbiamor satisfert humor absbit
Innocuus: scabrasque trahet purgamine sordes;
Tibi hec. Ast Mnemosyne modosa revellis
Sontlachuic morum labentis ante ruinas
Quesit erat ah quis suspirans inque amena est
Phillinidum vitiata mam? quid credere pro quo
Nonne vides Astrea fugit? quid secta colpas?
Quid querens difforme chaos? dum tempora volvit
Maxima dum veteres meritum fata figuras;

Insigni Archiqarde studio Sacrum

Si mihi corpe putas medico componere usus
Et Musis operam carminibusque dare
Nullaque Pegasei tamquam sit gloria fontis
Metraque sint studiis inferiora meis
Falleris: Ille meas primus qui tradidit artes
Quique salutiferam condidit auctor opem
Inter Pierides cythara crepitante sorores
Phebus divino pollice ducit ebur.
Sic lustrat celos. sic clara poemata fingit
Irradiatque novem flamina docta deas;

Nurnberge Calendis Sextilibus

1496

Fig. 117. Erste Darstellung der Syphilis.
Flugblatt des Nürnberger Stadtmedicus Ulsenius. Zeichnung von Albrecht Dürer.

Berliner Kupferstichkabinett.

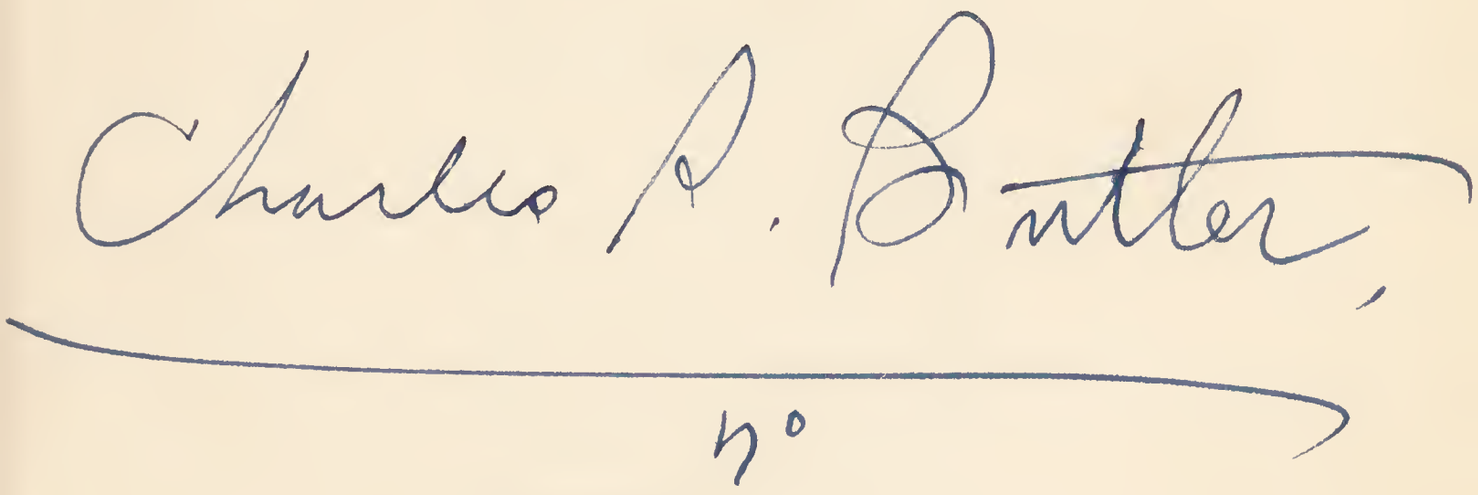
SYPHILIS SIVE MORBUS HUMANUS

A Rationalization of Yaws So-Called

For Scientists and Laymen
Interested in the Damage to
Man From Venereal Diseases

CHARLES S. BUTLER, A.B., M.D., LL.D.

Rear Admiral (MC) U. S. Navy. Member American Academy of Tropical Medicine. Fellow New York Academy of Medicine. President (1935–36) New York Society of Tropical Medicine.



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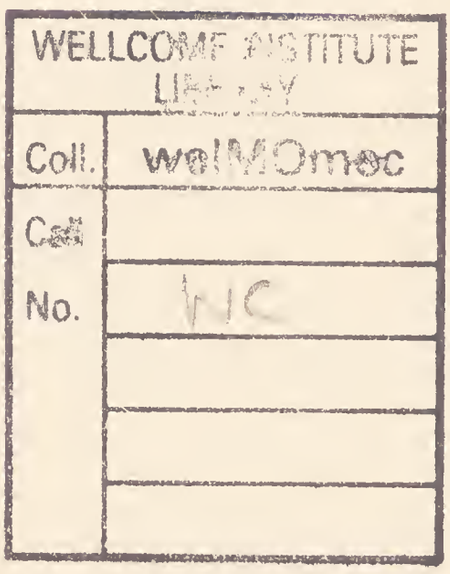
1936



THE SCIENCE PRESS PRINTING COMPANY
LANCASTER, PENNSYLVANIA

DEDICATED TO THE MILLIONS
OF BLACKS WHO HAVE DIED FROM
THEIR WHITE MAN'S BURDEN

ERRATA

Page xii, last paragraph: *change first sentence to read* It will become apparent as we proceed that this class of diseases is that about which there is a most urgent need for universal education of the people.

Page 4, line 8: *for* practicad *read* practiced.

Plate 1 (facing p. 4), first line of legend: *for* Marshalls Island *read* Marshall-Islands.

Plate 2 (facing p. 19), first line of legend: *for* Marshalls Island *read* Marshall-Islands.

Page 16, tenth line from bottom: *for* depised *read* despised.

Page 21, line 9: *for* dyphtheria *read* diphtheria.

Page 21, line 11: italicize *Borrelia.*

Page 22, tenth line from bottom: *after* thus: *insert* Lib. VI, Cap. XVIII.

Page 27, line 4: *for* λονόρροια *read* γονόρροια.

Page 27, third line from bottom: *for* pages 68 and 69 *read* page 69.

Page 27, seventh line from bottom: delete accent over Fracastorius.

Page 28, line 7: *for* Fracástorius *read* Fracastorius.

Page 48, eleventh line from bottom: *for* unsanitary *read* insanitary.

Plate 9 (facing p. 65), third line of legend: italicize *Glossina.*

Page 69, line 20: *for* East *read* east; *for* Southwest *read* southwest.

Page 75, eleventh line from bottom: *for* individuals *read* individual's.

Page 79, lines 5 and 6: *for* ankylosis *read* ankyloses.

Page 96, line 10: *for* will *read* shall.

Page 96, eighth line from bottom: for *gonorrhoea* read *gonorrhoeae.*

Page 99, seventh line from bottom: *for* Guaicum *read* Guaiacum.

Page 100, ninth line from bottom: first word, *for* "rhoae" *read* rhoea.

(OVER)

Page 108, fifteenth line from bottom: *for* perpetuated *read* perpetrated.

Page 110, second line from bottom: *for* people *read* peoples.

Page 111, line 1: *after* from *insert* the stigmata of those peoples who *do* treat generation by generation; *delete* those who do.

Page 115, seventeenth line from the bottom: *for* evidences *read* evidence.

Page 116, line 8: *for* Leon *read* Léon.

Page 116, eighth line from bottom: *for* Isac *read* Isao.

Page 116, transfer reference 1 to page 118 *after* "See Schöbl."

Page 118, ninth line from bottom: for *philippensis* read *philippinensis.*

Page 119, line 6: *after* not *insert* a.

Page 122, line 6: *for* Bartholomé de las Casas *read* Las Casas, Bartholomé de.

Page 122, line 11: *after* 1731. *delete balance and insert* "Natural History of North Carolina," published in sections from 1723 to 1739, first edition 1737, reprinted 1743. Brickell also wrote "Catalogue of American Trees and Shrubs which will endure the Climate of England," published in London, 1739.

Page 124, third line from bottom: *after* Maxwell, James, M.D. *insert* (1817–1854).

Page 124, second line from bottom: *after* 1839. *insert* After his return from Jamaica he practised at Broughty Ferry near Dundee, Scotland.

Page 131, line 3 and 4: *for* rhinopharingitis *read* rhinopharyngitis.

Page 132, fifth line from bottom: *after* OSTEOCOPIC PAINS. *change sentence to read* Pains in the bones, usually worse at night.

Page 132, line 8: *for* protoözosis *read* protozoösis.

Page 134, line 21: *for* Cynanche *read* cynanche; *for* C. *read* c.

Page 136, line 7: *for* Treponematosis *read* treponematosis.

PREFACE

In the preparation of this little volume, I am indebted to Dr. Paul Bartsch, Curator of Mollusks, Cenozoic Invertebrates, Helminths and Corals, United States National Museum; to Dr. Charles Upson Clark, Professor of Languages, College of the City of New York, and to Dr. Albert Henry Ebeling, Associate, Division Experimental Surgery, Rockefeller Institute. Each of these Scientists will know why I am grateful to him. R. M. Beard, Chief Pharmacist's Mate, U. S. Navy, in charge of the Photographic Laboratory, U. S. Naval Hospital, Brooklyn, New York, prepared all the photographic material for reproduction in this book. His work is excellent.

Questions here discussed have been matters of controversy for 175 years or four generations. The yaws-syphilis controversy, the infant of the three, prompted Captain Holcomb's facetious remark that if we cannot make a diagnosis upon our patient until three generations after he is dead, what balm is there in Gilead?

Science should recognize no national boundaries. It has only one flag, the flag of truth. In the pages of this book, I have never "pulled my punches." On the other hand, I ask no quarter. May I express the hope that it will help the cause of science along the road to truth! Slang expressions and ungraceful words and terms are used in this volume, not from choice, but because of a desire to appeal to all classes who may read the book. Fracástoro tried the polished method in 1530, but his message never got across to the people. His child was still-born because of the elegance and inaccuracy of his name for it, "Syphilis, The French Disease."

The frontispiece picture of the "first syphilitic" is from a woodcut made by Albrecht Dürer (1471–

1528). Its history was secured for me by Mr. Erik W. Ehn, of Schweinfurt-am-Main, and here follows his letter concerning the matter:

"Berlin, September 26, 1930.—I have located the woodcut you wanted me to look up. The copy I have seen is in the *Friederich Wilhelm Museum* in the department Koenigliches Kupferstick kabinete. The woodcut is very rare, but about twelve copies are known. In Vienna a somewhat different print is to be found, but the difference is mainly that a part of the picture at the lower end has been cut off and something else written thereon. . . . The woodcut is about 28 x 40 cm. in size. It is very clear and well painted, apparently in water colors. . . . I had no difficulty in locating the picture. I was given a big book containing all known woodcuts of Dürer and on locating the picture the original was brought to me." The following is a translation of the remarks in this book concerning this picture: "Picture 92—The French Disease. (The Syphilitic). P. 198—1495 or 1496. D. S. 268. Was given out as a single printed page with a verse by the Nuremberg physician, Dr. Ulsenius, whose origin was the Friesian Islands, 1 August 1496 (Schr. Friesian Islands, 1926). The shields over the shoulders of the man who is covered with an eruption show the Nuremberg coat of arms, above the man a sphere with the Zodiac below the sun. The first to mention the print was H. A. Cornill d'Orville (Naumanns Archiv., 1856, 2–10). Thauling said that it was not by Dürer, also Weisbach (J.D.S. 72). Dornoffer believed it to be Dürer (Klt. Anz. 1905, p. 50). Dodgson said it was 'likely' to be a Dürer, while Weirlgartner refused to believe it so. Stadler (p. 222) claimed it to be by the 'Bergmann-master,' i.e., by Dürer, and later Haberditzl refused to believe it made by Dürer. Haberditzl shows on page 174 a second variation

(Vienna), by which about 2 cm. at the bottom of the picture have been cut off and a different legend added. The book from which this is taken is: 'Albrecht Dürer; Samtliche Holzschnitte.' Herausgegeben von Willi Kierth mit einam Begleitwort von Campbell Dodgson Holbein Verlag, Munchen." Note the date 1484 in the Zodiac above the syphilitic's head. This is the ill-starred date when syphilis first made its appearance in Nuremberg supposedly.

INTRODUCTION

"This above all: to thine own self be true
And it must follow, as the night the day.
Thou canst not then be false to any man."

A truth which has been vouched for by many!

Though the Hippocratic Oath embodies this truth for the Guild of Aesculapius, it is manifestly not possible for the profession as a group to live up to it. In the introduction to his valuable work "Domestic Medicine," published in numerous editions and translations during the latter half of the 18th century, Dr. Wm. Buchan made several observations which are as true today as they were for the ages agone. In speaking for a more general understanding of medical matters on the part of the laity he said:

. . . the man who adds one single fact to the stock of medical observations, does more real service to the art, than he who writes a volume in support of some hypothesis. Very few of the valuable discoveries in Medicine have been made by physicians. They have in general either been the effect of chance or of necessity, and have been usually opposed by the Faculty, till everyone else was convinced of their importance. An implicit faith in the opinions of teachers, an attachment to systems and established forms and the dread of reflections, will always operate upon those who follow medicine as a trade. Few improvements are to be expected from a man who might ruin his character and family by even the smallest deviation from an established rule.

Thus does a great physician castigate "authority" at a time when it had already ruled in Medicine for some 3000 years, and some 75 years before this image, authority, toppled to the earth! Again Buchan remarks:

Nothing ever can or will inspire mankind with an absolute confidence in physicians, but an open, frank, and undisguised behavior. While the least shadow of mystery remains in the conduct of the the Faculty, doubts, jealousies and suspicions, will arise in the minds of men.

And again this 18th Century savant remarks:

Few persons are able to distinguish sufficiently between the conduct of that man who administers a secret medicine, and him who writes a prescription in mythical characters and an unknown tongue. Thus the conduct of the honest physician, which needs no disguise, gives a sanction to that villain, whose sole consequence depends upon secrecy.

No laws will ever be able to prevent quackery, while the people believe that the quack is as honest a man and as well qualified, as the physician. A very small degree of medical knowledge, however, would be sufficient to break this spell; and nothing else can effectually undeceive them. It is the ignorance and credulity of the multitude, with regard to medicine, which renders them such an easy prey to everyone who has the hardiness to attack them on this quarter. Nor can the evil be remedied by any other means but by making them wiser.

The most effectual way to destroy quackery in any art or science, is to diffuse a knowledge of it among mankind. Did physicians write their prescriptions in the common language of the country, and explain their intentions to the patient, as far as he could understand them, it would enable him to know, when the medicine had the desired effect; would inspire him with absolute confidence in the physician; and would make him dread and detest every man who pretended to cram a secret medicine down his throat.

This was written seventy-five years before the discovery and development of anaesthesia made experimental medicine possible. It is true today for we still have many quacks and the nostrum industry is one of the most profitable in existence. There is still much ignorance on the part of the multitude regarding medicine in spite of strenuous efforts on the part of medical organizations to correct it. To give only one example out of many attempts to enlighten the people regarding matters medical, the American Medical Association has for nearly ten years published an authoritative journal called *Hygeia* whose sole purpose is to enlighten the people upon matters of this sort in terms they understand. This lag in getting "the feel" on the part of the people may be attributed to several causes:

Superstition and Devil-Medicine from which we have evolved still holds us in its grip and furthermore a majority of the human race is born below par mentally. This fact gives force to Ibsen's thesis, nicely developed in one of his plays, "An Enemy of the People (1882)" that "a *minority* may be *right*,—a majority is always wrong." Any attempt to grasp what seems a bit off their beaten track is too much to expect. In the department of the venereal diseases to which this volume is dedicated there are other reasons why popular knowledge is backward. In addition to the above we here have (1) greed on the part of the physicians who would deliberately withhold exact information from the people, (2) fear of exposure and resultant "loss of face" and money on the part of the individual. This results in concealment. A man or woman in the infectious stage of gonorrhoea or syphilis should be placed in charge of the state authorities until no longer a menace to the community. Any other course is wholly illogical for medical quacks are as numerous as autumn leaves and they will exploit the high and the low just as long as the money holds out.

Some one has said that: "To reverence superiority and to accept a fact though it slay him are the final tests of an *educated* man." Judged by this standard vast numbers of physicians who resent what they are pleased to term the socialization of medicine are *not* educated men. If indeed "*life, liberty* and the *pursuit of happiness*" are among the unalienable rights of men then we would reverently add another which may be called a corollary of each of these, namely the right to purchase at a cost within his means the very *best* the community affords in diagnosis and in treatment. Every man's life is in jeopardy when he is sick from however slight a cause, nor can any *real man* feel himself free or particularly successful in his pursuit of happiness if he is broke, or if he is considered an object

of the community's charity in recovering from his disease.

Modern diagnosis is highly specialized and infinitely complex—Medical and Surgical practice and procedure are exquisitely technical and often too costly to be obtained by the man of moderate means—yet this skill should be available to all of us whatever our station in life.

It is impossible for a single individual to acquire all of the technical medical, surgical, diagnostic and therapeutic skill here implied, and even if he could acquire it, he would not have the time to make it effective in his practice.

It will become apparent as we proceed that this class of diseases is that most urgently requiring popular education in order to decrease their prevalence. Without popular indoctrination about the venereal diseases, medical knowledge can never register its greatest good. It will be the purpose of this volume *First* to give this popular knowledge; *Second,* to expose the fallacy of the American-origin-of-syphilis hypothesis and, *Third,* to show the unity of so-called "yaws" and syphilis.

CONTENTS

CHAPTER I

THE STORY OF SYPHILIS

THE FAMILY

"Tell us, pray, what devil This melancholy is,
which can transform Men into monsters."
John Ford—The Lover's Melancholy, Act III.

The human being is the only animal that "loves all the year around," and is given to sexual debauchery. He is, with one or two minor exceptions, the only animal which suffers from what, because of their usual method of transfer, are called venereal diseases. The family is an institution which man has erected, subconsciously in the long past ages to purge himself of these diseases and purify his offspring. The effect of both the monogamous and polygamous (as in Turkey) family is to limit the spread of venereal diseases and purify the offspring. Promiscuity has precisely the opposite effect, i.e., to limit the offspring and to disease it. Because of this man has developed a set of morals which is peculiar to him. It is not a sin simply to respond to the urge to reproduce because that urge is normal. It *is* a sin however to gratify that desire in such a manner as to jeopardize the well-being of the offspring. No damage comes to the individual from suppressing this inclination to reproduce. In fact, proper sublimation is responsible for man being able to transcend the performance of any other animal in the use of his mind and body. So that human morals as they apply to sexual matters are fortified by a beautiful system of family ethics which restrains the normal civilized human being from invading the family rights of his neighbor. This peculiarity of the human animal probably developed early in his history. It has taken many thousands of years to furnish the biological reason for it. The

human family is therefore a most complex institution. How different this institution from that which obtains with other animals is shown in the fact that reproduction between the closest blood relations is normal to most animals. With man incest is a crime of the most repulsive type. Exogamy is man's spontaneous gift to eugenics. The family therefore furnishes to man that something which has made him go so far. It also furnishes the basis for many of the diseases peculiar to him. Contrary to general opinion (especially among the ladies) the male of the species, while less deadly, is more gaudy. Witness his greater size and more magnificent hirsute adornment! Among higher animals greater adornment of the female is rare. It *does* occur, e.g., in the painted snipe, *Rostratula capensis* L., while among the lower forms it is common. Among the mosquitoes and ticks, the male is simply a detached part of the female's generative apparatus. There are spiders, the black widow, *Latrodectus mactans,* for example, which not only treat their consort with infinite contempt, but after his having taken care of the perpetuation of the species, she "ropes" him for food for *her* young.

During the mating time it is the case that male or female or both take on extra attractions. Some of the seabirds put on a most elaborate display during the mating season. The small white albatross, *Diomedea immutabilis* Rothchild, makes a community affair of it and collecting in circles bow, scrape and "dosee-balancé" just as if doing the Virginia reel. Some of the Man-o'War birds of the genus *Frigata* while sitting upon the eggs inflate a bag at about the place where man has his Adam's apple. Often this is highly colored and almost as large as the body of these large species. When made to fly off the nest, this big bladder will flop from side to side while deflating and greatly impede the bird's progress through the air.

The technique of coitus for different species of animals is interesting and oftentimes inexplicable. Tapeworms are hermaphroditic, each segment being provided with male and female generative organs. The fur seal, *Callorhinus alascans* Jordan and Clark, has the female provided with a bicornate uterus. One of these horns is pregnant practically all the time for the period of gestation is nearly a year. When, in the springtime, she goes to the Pribilof or other seal islands to discharge one of these, nature immediately provides her with that something ("it") the counterpart of springtime's livelier iris which comes upon the burnished dove, and the old bull seal cannot resist providing a new cargo for the other horn, which will hold her secure against the blandishments of any gay *young* seal which might be attracted by her charms. The dog, *Canis familiaris,* has the most peculiar reproductive requirements in that during copulation the expansion of the bulbus glandis at the base of the os penis, combined with the contraction of the vaginal sphincter, locks the dog and bitch together in such a way that they remain inseparable for long periods of time during which the stronger may "take the weaker for a ride" if frightened. If such a system had been imposed upon man, it would have greatly increased the tragedies of life. The human species therefore has *some things* to be thankful for.

THE MEDLEY WHICH WAS LEPROSY

The medicine of the Bible may be taken as typifying that of centuries before the earliest biblical records and for certainly 15 centuries after the birth of Christ. Leprosy is the one disease which all authorities agree was part of Eurasian-African antiquity. From Leviticus XIII. 2, dated 1490 years (570)[1]

[1] Larger figures from Bishop James Ussher (1581–1656). Those in parenthesis are of the newer criticism.

B.C., to Matt. VIII. 2, Mark I. 40, and Luke V. 12, leprosy and lepers are spoken of scores of times. The time span between these writings was 1525 (600)[1] years or almost 4/5 (1/3)[1] of the period of the Christian era during which the medicine, diagnosis, sanitation and treatment of Bible times was in full effect among all Christian peoples. In other words, physicians practicad biblical medicine up to the beginning of the 16th Century and a close approximation to it up to the decade 1840–1850, when anaesthesia was perfected which discovery did away with limits to medical progress.

In the so-called Mosaic Law of the 13th Chapter of Leviticus, we cannot recognize clearly *any one disease*. True, leprosy was undoubtedly part of it but there was more than this. At least five diseases are included in this chapter: (1) true leprosy, (2) psoriasis, (3) types of tinea and certainly sycosis barbae, (4) syphilis (general eruption, alopecia)—"And if there be in the bald head or bald forhead (eyebrows?) a white reddish sore; it is a leprosy sprung up in his bald head or bald forhead." Lev. XIII. 42. This might easily be the corona veneris of lues, (5) lupus vulgaris and other types of tuberculosis of the skin, (6) leishmaniasis of the skin, (7) itch, etc.—We learn from this chapter also that such diseases were up to the priests to cure, *not the doctors*. This practice extended through the Middle Ages. Lev. XIII shows that those who were "unclean," i.e., suffering from mutilating diseases, had to put a cloth over their upper lip (Lev. XIII. 45) (was this to prevent spraying?) and cry unclean when being approached. The Mosaic Law shows that the ancients vaguely sensed the idea that clothing might cause infection in others. Cleansing and burning were alternatives here. Now the history of leprosy as related in the Handbook of Geographical and His-

PLATE 1. A Marshalls Island woman, showing the confusing points as between leprosy and syphilis. This woman looks like a leper, but she is not. She has had extensive frontal syphilitic osteitis and has the lorgnette nose which is supposed to go with leprosy. Both the nose and the frontal mutilations may come from syphilis. Syphilis and leprosy are confused in diagnosis even at the present time. Kindness of Rear Admiral James C. Pryor (MC) U. S. N., Retd.

torical Pathology by August Hirsch, V. 2, Ch. 1, pp. 1–58, will convince any unbiased investigator of the following: (1) that the Mosaic method of handling leprosy was in effect right down to the 16th Century, (2) that the biblical use of the word "leprosy" was inclusive of a number of diseases with true leprosy one of the smallest from the standpoint of incidence, (3) that the handling of leprosy was in the hands of priests and later of religious sects and was not a function or duty of *the physician* at all, (4) that consequently no attempt was or could be made at differential diagnosis for some 2000 years before the beginning of the 16th century, (5) that the 19,000 leper houses with which Christendom was saddled at the beginning of the 13th century housed a vastly greater number of mutilated syphilitics than true lepers, (6) that the better understanding of diagnosis developed during the 15th century was responsible for the depopulation of these leper houses and the apparent falling off in the incidence of leprosy throughout Europe, (7) that the leper house was simply a slight modification of the Mosaic method of driving the "unclean" from the camp or outside the walls of the city.

In the works of that remarkable Jew, Flavius Josephus (37–95), we get one of the earliest layman accounts of antiquity's method of handling venereal diseases. In the translation of his works by William Whiston, Chapter XI of the Book of Antiquities of the Jews is entitled "Of the Purifications" and from this we get an insight into certain medical and quarantine practices which persisted intact down to 1850. Josephus is here speaking of the laws and orders of Moses which were planned to keep the children of Israel in a state of health.

3. He also ordered that those whose bodies were afflicted with *leprosy,* and that had a *gonorrhoea,* should not come into the city;

nay, he removed the women when they had their natural purgations, till the seventh day; after which he looked on them as pure and permitted them to come in again. The law permits those also who have *taken care of funerals,* to come in after the same number of days, is over; but if any continued longer than that number of days in a state of pollution, the law appointed the offering two lambs as a sacrifice; the one of which they are to purge by fire, and for the other the priests take it for themselves. In the same manner do those sacrifice who have had the *gonorrhoea.* But he that *sheds his seed in his sleep,* if he goes down into cold water, he has the same privilege with those that have lawfully accompanied with their wives. And *for the lepers,* he *suffered them not to come into the city at all, nor to live with any others, as if they were in effect dead persons; but* if any one *had obtained,* by prayer to God, *the recovery from the distemper, and had gained a healthful complexion again,* such a one returned thanks to God, with several sorts of sacrifices; concerning which we will speak hereafter.

FINDINGS

1. Gonorrhoea, the word, is 2,000 years old.
2. The ancients had a type of leprosy which was curable and also the incurable type.
3. Gonorrhoea, leprosy and syphilis were confused right down to modern times.
4. Leprosy was supposed to be contracted by sexual intercourse.
5. Lepers were handled by priests and got the "death sentence" right through the middle ages.

LAG IN MEDICINE BETWEEN THE DISCOVERY OF A FACT OR A PRINCIPLE AND ITS POPULAR ACCEPTANCE

Claudius Ptolemaus (127–151), known to science as Ptolemy, knew that the earth was a globe. Nearly 14 centuries later (1543) Copernicus (1473–1543) put this fact forward in such a way as to gain popular acceptance for it. He showed that the earth was not the center of the universe.

Science and in particular medicine offers many examples of this lag. Rediscovery of forgotten finds is not unusual.

There is no doubt that many of the facts and principles of medicine which we use today were known to the ancients. Three handicaps to medical advance held back the healing art until comparatively recent times:

(1) The "humoral pathology" which held sway from Hippocrates (400 B.C.) to Paracelsus (1493–1541) or about 20 centuries.

(2) Lack of *human* dissections so that ideas of human anatomy were those of Galen (129–201) derived from dissections of animals. These false ideas of human anatomy dominated medicine up to the time of Vesalius (1543) or some 1400 years.

(3) Lack of a knowledge of anaesthesia which made the experimental method impossible in medicine. Anaesthesia, an American contribution of the decade 1840–50, opened the whole field of human and animal experiment to medicine and surgery. Had these essentials to advancement been effected at the same epoch, say at the beginning of the 16th Century, the effect would have been to unshackle medicine from the thralldom of the past some four centuries ago, instead of at the middle of the 19th Century.

The putting aside of "authority" initiated by Paracelsus and the exact knowledge of human anatomy begun by Vesalius made possible Harvey's discovery (1628) of the function of the heart as a muscular organ and the complete circuit of the blood through the body and its return to the heart. We wonder how ancient and medieval physicians escaped the conviction that there was something terribly wrong about their ideas of the heart arteries and veins. It was one of those things similar to the belief that the

earth was flat. But a little thought about the shape of the setting sun or of the full grown moon might have convinced the ancients there was something wrong. But for 2000 years "authority" ordered the earth to be flat and flat it was. Similarly it was not until the discovery of anaesthesia that medicine came completely into its own. The giving of pain to man or animals is so revolting to the human being as to dampen completely the urge to find out the facts and principles by planned experiments. Surgery was a ghastly joke when practiced with the consciousness that the patient was being shocked to death by the agony of it. As a result, no experimentation was justified and medicine as far as its surgical and curative aspects are concerned was about in the status it occupied in the year 400 B.C. The treatment rendered George Washington in his mortal illness in 1799 was that recommended for similar conditions by Thomas Sydenham in 1666. The Father of his Country had just about the same therapeutic skill exercised in his behalf as Galen would have used in treating Marcus Aurelius for a septic sore throat in the year 164 A.D. or as Hippocrates (460–370 B.C.), the Father of Medicine, would have exhibited in treating his contemporary ruler Pericles (495–429 B.C.) for a similar complaint in 429 B.C. It took anaesthesia to remove all restrictions from the science of medicine and make every physician the potential intellectual equal of every other physician. Consequently, medical advances in each decade since 1850 have been more and of greater importance than for the whole sweep of the centuries since civilized man first consulted his physician for the alleviation of his bodily ills.

THE BIBLE AND SYPHILIS

What evidence have we for the contention that syphilis was a part of ancient European (Eurasian) pathology?

(1) Evidence from specific portions of the Bible, Ex. XXXIV. 7, is the verse in which Moses assures his people that The Lord "will by no means, clear the guilty; visiting the iniquity of the fathers upon the children and upon the children's children, unto the third and to the fourth generation." Now syphilis is the single and only human disease which does this. In this and other places it is clear that the people of the Bible sensed the fact that certain diseases carried over from parent to child.

(2) As already pointed out the XIII Chapter of Leviticus must certainly have confused syphilis with leprosy. In reading from the 10th to 15th verses inclusive, it is clear that the priest often had to differentiate between a leprosy which was unclean and a leprosy which was clean.

10. And the priest shall see him; and behold, if the rising be white in the skin, and if it have turned the hair white, and there be quick raw flesh in the rising;

11. It is an old leprosy in the skin of his flesh, and the priest shall pronounce him unclean, and shall not shut him up: for he *is* unclean.

12. And if leprosy break out abroad in the skin, and the leprosy cover all the skin of him that hath the plague from his head even to his foot, wheresoever the priest looketh;

13. Then the priest shall consider: and, behold, if the leprosy have covered all his flesh, he shall pronounce him clean that hath the plague: it is all turned white: he *is* clean.

14. But when raw flesh appeareth in him, he shall be unclean.

15. And the priest shall see the raw flesh and pronounce him to be unclean: *for* the raw flesh *is* unclean: it is a leprosy.

In these verses, it seems that the priest makes his diagnosis upon the matter of an open ulcer. Both these hypothetical cases had "a plague of leprosy" but the one with a generalized eruption was "clean" and the one with an open ulcer was "unclean." Both leprosy and syphilis may show an open ulcer or a generalized eruption. Syphilis is more likely to show the latter.

It seems strange to us moderns that the most important sign of one type of true leprosy escaped physicians until the first half of the 14th Century. This was anaesthesia and its diagnostic importance was pointed out by Jean Yperman (1295–1351).

The diagnostic points used by the priests seem quite insufficient to make the momentous decision as to what to do with the victim. Lev. XIII. 46 gives us the law and the practice thus: "All the days wherein the plague *shall be* in him shall be defiled; he *is* unclean: he shall dwell alone; without the camps shall his habitation be." A very severe punishment to hand out by a single person upon such sparse diagnostic differentiation! Verily, there is no darkness but ignorance! Nevertheless, this technique of handling lepers was in vogue for some 2000 years.

But the point here is that the priests of the Old Testament had to make the diagnosis as between generalized eruptive diseases and one of these was known to be true leprosy. The most likely confusing disease was "true syphilis," although many modern authorities are certain that syphilis was not a part of ancient pathology because, they contend, Columbus carried syphilis back to Europe with the return from his first voyage. Their type of reasoning is a reductio ad absurdum and on all fours with the differentiation under the Mosaic law of the clean and the unclean. We say this for the reason that until 1850 the three venereal diseases we know as gonorrhoea, syphilis and chancroid were not differentiated. They were considered as *one* disease, *the* venereal disease. It is absurd to single one of these and say that one is from America.

Who with a knowledge of the venereal diseases could read the XXXVIII Psalm and deny to David a fair understanding of these diseases even as we know them in the 20th Century? Many of the symptoms of venereal diseases are set forth there from the remorse

"when my foot slippeth" to the osteocopic pains described thus "neither is there any rest in my bones because of my sin," "my wounds stink and are corrupt because of my foolishness." What other kind of foolishness except venereal foolishness would give one such a type of wounds? "For my loins are filled with a loathsome disease and there is no soundness in my flesh." Again, what except syphilis could explain this statement from Deuteronomy? (According to Bishop James Ussher (1581–1656), written 1451 B.C. but according to other scholars was composed by a group of Isaiah's followers in the 7th Century B.C. It gives the punishments for disobedience in the time of Moses.) Deut. XXVIII. 27 reads: "The Lord will smite thee with the botch of Egypt, and with the Emerods, and with the scab, and with the itch, whereof thou canst not be healed." It is of course not possible to state what these several skin diseases were. Psoriasis, true leprosy and for those times having no luetic specifics, syphilis are some of the conditions which might meet the specifications "whereof thou canst not be healed." Very likely all three of these and perhaps other chronic skin diseases were among those used as "punishments for disobedience." Deut. XXVIII. 28. "The Lord shall smite thee with madness, and blindness and astonishment of heart:" There are those who contend that every sin has a physical background. An act or a habit is not sinful simply because it is inhibited by the Bible. The drinking of alcohol is not necessarily a sin because it enables man pleasurably to escape from the realities of life. It is a sin by reason of the fact that in the end it causes mental, moral and physical deterioration if used to excess. So with promiscuous intercourse between the sexes and the violation of family morality. This ultimately destroys the individual and the offspring. Gonorrhoea and syphilis both cause blindness and often sterility.

Syphilis through its action on the blood vessels of the brain and cord often causes madness and causes its tabetic victims to "grope at noonday." Syphilis also causes serious lesions of the cardiac muscle and the great vessels of the thorax. It is the most potent of all disease producers of "astonishment of heart."

If one refers to the Third Chapter of Isaiah, and reads from the 16th verse to the close, what other conclusion may we come to but that in this case the daughters of Zion were being advised about their looseness in sex matters, and the punishment which would come to them from a disregard of the cautions administered in this matter?

16. Moreover the Lord saith, Because the daughters of Zion are haughty, and walk with stretched forth necks and wanton eyes, walking and mincing as they go, and making a tinkling with their feet:

17. Therefore the Lord will smite with a scab the crown of the head of the daughters of Zion, and the Lord will discover their secret parts.

18. In that way the Lord will take away the bravery of their tinkling ornaments about their feet, and their cauls, and their round tires like the moon,

19. The chains, and the bracelets and the mufflers,

20. The bonnets, and the ornaments of the legs, and the headbands, and the tablets, and the earrings,

21. The rings, and nose jewels,

22. The changeable suits of apparel, and the mantles, and the wimples, and the crisping pins,

23. The glasses, and the fine linen, and the hoods, and the vails.

24. And it shall come to pass, that instead of sweet smell there shall be stink; and instead of a girdle a rent; and instead of well set hair baldness; and instead of a stomacher a girding of sackcloth; and burning instead of beauty.

25. Thy men shall fall by the sword, and thy mighty in the war.

26. And her gates shall lament and mourn; and she being desolate shall sit upon the ground.

To understand the travail through which knowledge of "madness" has come one should glance through that monumental work of Robert Burton (1577–1640),

"The Anatomy of Melancholy," (1621). In this volume Democritus Junior (Burton's pen name) creates a "storehouse of the most miscellaneous learning." But the impression one gets is that the amount which physicians of all ages down to Burton's time knew about "melancholy" (or any other type of insanity for that matter) was precisely nothing. The way "Manaicus" was handled until the 19th century is vividly depicted in the frontispiece of The Anatomy of Melancholy where he is shown chained by both ankles to the wall of a cell. This brutal handling of the insane persisted down to our own era. Now the most fruitful source of insanity is syphilis. Syphilis shows its unholy head not alone in the rotten ulcerating bodies of certain ancient and medieval rulers, but also in the madness of many of their great ones. One of the unfortunate results of the medical miscarriage which would place the origin of syphilis in America, is the shackling effect it has upon our reasoning about the diseases of those ancient times. Syphilis has left too good a trace in pre-Columbian Europe to permit this to stand however.

Reasons for stating syphilis was European in pre-Columbian times:

(1) Aulus Cornelius Celsus (25 B.C.–50 A.D.) described the hard and soft genital lesions (Lib. VI. Cap. XVIII) and ulcers of the tonsils, uvula, mouth and nostrils.

(2) Under the condition called porrigo (Lib. VI. Cap. II) Celsus gives a very good description of the corona veneris and says, "it does not occur without some previous disorder of the body" which he calls the "noxious humour."

(3) Under the designation sycosis, Lib. VI. Cap. III, Celsus refers to a lesion resembling the fig (σῦκον) and hence the Greek name sykosis. Here he confuses several conditions accompanied by ulceration one of which is syphilis framboesiformis.

NOTE: The Roman Epigrammatist Martial (40–104) pokes fun at a victim of the "fig." The condyloma looked like a fig (Latin = ficus). Now Martial makes reference to the contagiousness of condylomata at several places—Epigram: Lib. VII No. 71 Loeb is: "De familia ficosa" and reads thus: "Ficosa est uxor, ficosus est ipse maritus, Filia ficosa est, et gener atque nepos, nec dispensator, nec vilicus, ulcere turpi nec rigidus fossor, sed nec arator eget." *Translation*: "Figged is the wife, figged too the husband, the daughter is figged and the son-in-law and the grandson; nor is the steward or the bailiff free from this unsightly tumor nor the sturdy ditcher nor the ploughman. Seeing that young and old alike are figged, the wonderful thing is—not a single field bears figs." It may thus be seen that while the Greek and Roman *physicians* would have nothing to do with the venereal diseases, their satirists had no such "inhibitions."

(4) In Lib. VII. Cap 30, Celsus describes "the tubercles which are called condylomata, warty excrescenses" around the anus differentiates these from fissures and from haemorrhoids and describes their special treatment by excision and the use of copper scales "to keep them under." These isolated descriptions of several conditions which Celsus thought individual diseases to the modern physician spell syphilis. By Celsus diseases of the "secret parts" were to be described (see Chapter IV) but other *physicians* of his day would not deign to look at them, examine them or treat them.

(5) Dioscorides, Greek physician of the 1st or 2nd Century A.D., was a Roman Army Surgeon and wrote a work upon Materia Medica. Being in contact with soldiers he must have known the current treatment of the venereal diseases. His work translated into English by John Goodyear in 1655 has been recently (1933) edited by Robt. T. Gunther, M.A., LL.D., and published by the Oxford University Press in the English of 1655. Under Molubdos Peplumenos, Washed Lead, S 95 page 631 of this work occurs the following: "It is of force to cool, to bind, to stop ye

pores, to fill up hollownesses, to stay the rhumes that fall into ye eyes, and ye fleshy excrescencies of ulcers. And it is also a blood-stancher and good for ye ulcers in ye seat for ye condylomata and haemorrhoids with Rosaceum."

(6) Perhaps the best evidence we have that Europe did not have to await the discovery of America in order to become acquainted with syphilis is the accurate and unmistakable descriptions of non-traumatic aneurisms by several ancient writers. Aneurism due to war and surgical wounds was well known but there was another type not due to trauma and occurring in the large vessels at the root of the neck. Aneurism of this type was so common in ancient times that some of the best operations ever devised for the cure of it were by surgeons of the early Christian era. In his admirable work, Modern Surgery, by the late John C. DaCosta, Ninth Edition, 1925, we find on pages 367 and 368, the following:

> Aneurysmotomy, the method of Antyllus, a Roman successor to Galen, who lived in the third century A.D. is usually described as a method involving a direct attack upon the sac itself. The artery is ligated immediately above and below the sac, the sac is opened and its contents turned out or the sac is extirpated. As a matter of fact, Antyllus advocated applying a ligature on each side of the sac and opening the sac in order to evacuate its contents, but he distinctly opposed extirpation because of its danger. All we know of Antyllus is found in the writings of Oribasius who lived in the fourth century and was the physician of Julian the Apostate. . . . The method of Antyllus may be a good plan for a false aneurism.

Arthur J. Brock, M.D., in Greek Medicine, E. C. Dutton & Co., Appendix B, pp. 247 and 248, gives a dissertation upon Aneurisms by Aetius of Amida, Sixth Century A.D. His diagnosis, symptomatology and operative advice leave no doubt that Aetius of Amida was talking about the type of aneurism which we moderns know as always due to syphilis. His opening sentence I quote:

Aneurisms occur in every part of the body but especially beside the windpipe in the formation of the so-called aneurismal bronchocele. . . . Signs which accompany an aneurism are: a small or large swelling of uniform color, painless, extremely soft and elastic. It yields to the pressure of the fingers, so as to become almost imperceptible, and then again rapidly swells up. This especially happens in aneurisms below the jaw, and such ulcers as have developed apart from traumatisms; . . .

(7) Next to aneurism as indicating the presence of old syphilitic infection in the individual is the development of that terrible mutilating condition of the upper respiratory and gastro-intestinal tracts now put down in the nomenclature of disease under the name gangosa. In the XIX Chapter of Job is the biblical picture of this loathsome condition. It shows the tendency of children, adults, servants and the members of one's family to desert the unhappy victim of a dyscrasic mutilation. Vaguely Job sensed that it was a punishment for his sins, bitterly his remorse bore down upon him and he trusted the Lord to relieve him. The 14th to the 21st verses inclusive, bring out these points:

14. My kinsfolk have failed, and my familiar friends have forgotten me.

15. They that dwell in my house, and my maids, count me for a stranger. I am an alien in their sight.

16. I called my servant and he gave ME no answer; I intreated him with my mouth.

17. My breath is strange to my wife, though I intreated for the children's sake of mine own body.

18. Yea, young children depised me; I arose and they spake against me.

19. All my inward friends abhorred me: and they whom I loved are turned against me.

20. My bone cleaveth to my skin and to my flesh, and I am escaped with the skin of my teeth.

21. Have pity upon me, have pity upon me, O ye my friends; for the hand of God hath touched me.

Other ancient writers spoke of these major mutilations which are caused only by syphilis.

Aretaeus, The Cappadocian, a contemporary of Galen, in Book I, Chapter IX (The Extant Works of Aretaeus, The Cappadocian, Edited and translated by Francis Adams, LL.D., The Sydenham Society, 1856, London), says in part, speaking of ulcerations about the tonsils:

Ulcers occur on the tonsils; some indeed of an ordinary nature, mild and innocuous; but others of an unusual kind pestelential and fatal. Such as are clean, small, superficial, without inflammation and without pain, are mild; but such as are *broad, hollow, foul,* and *covered with a white livid, or black concretion,* are pestelential. Aphtha is the name given to these ulcers. But if the concretion has *depth,* it is an *eschar* and is so called: but around the eschar, there is formed *a great redness, inflammation, and pain of the veins,* as in carbuncle; and small pustules form, at first few in number but others coming out, these coalesce and *a broad ulcer is produced.* And if the disease spread outwardly to the mouth and reach the columella (uvula) and divide it asunder, and if it extend to the tongue, the gums and the alveoli, the teeth also become loosened and black; and the inflammation seizes the neck; and these die within a few days from the inflammation, fever, foetid smell, and want of food. But if it spread to the windpipe, it occasions death by suffocation within the space of a day. For the lungs and heart can neither endure such smells nor ulcerations, nor ichorous discharges, but coughs and dyspnoea supervene.

This description has been attributed to anthrax (malignant pustule), quinsy, diphtheria and other conditions. These may have figured but ulceration of the tonsils, with a stinking slough is characteristic of syphilis. If, however, we consider that syphilis did not figure in the above, what else will account for the disease which gave rise to this description from the same author, Book I, p. 410, being part of Aretaeus' description of the "Cure of the Pestilential Affections about the Pharynx?" Under Therapeutics, he says:

In certain cases also the uvula has been eaten down to the bone of the palate and the tonsils to their base and epiglottis, and in consequence of the sore, the patient could neither swallow anything solid nor liquid; but the drink, regurgitating has cut him off by starvation.

This certainly reads like a description of gangosa which is always syphilitic or framboesial. In the Island of Guam it was gangosa which often killed the victims of treponematosis and not the *early lesions* of this affection.

The above descriptions of this terrible sequela of syphilis were pre-Columbian in point of time. Now listen to Jean Astruc in "A Treatise of The Venereal Disease in Six Books" which was translated from the Latin of Astruc into 18th Century English in 1737. His description of what we would call gangosa is from Volume 2, Book 4, page 24 of the 1737 translation. We give it in the attractive diction of the translation; Sections IV, V and VI describe this mutilation:

IV. Ulcers and Depression of the Nose.

IV. The Mucus of the Nose is affected in much the same manner, if it is thicken'd upon the reception of the Infection, by its stagnation it enlarges the Glands in which it is secreted, and by degrees forms polypous, callous, fungous, ulcerous, carcinomatous Sarcomata, in proportion to the different quality of the nutritious Lymph. If from the same cause it acquires too great Acrimony, by corroding the parts it produces Ulcers, Phlyctenae, and Ozaenae, or malignant Exulcerations, and from hence a Caries of the spongy Bones of the Nose, of the two triangular Bones, and of the Vomer itself upon which it is fix'd, from hence the whole Chamber of the Nose being destroy'd, and the Bridge of it falling in, those who had before an elate Nose like an eagle, becomes flat-fac'd like an ape.

V. Speaking through the Nose, and loss of Speech.

V. The Uvula being corroded, the Bones of the Palate, the spongy Bones of the Nose, and the Vomer being destroy'd by a Caries, the Bridge of the

PLATE 2. A Marshalls Island woman who, like Job, had escaped with the skin of her teeth. Kindness of Rear Admiral James C. Pryor (MC) U. S. N., Retd.

Nose too being depress'd, the Passage through which the air is carried must necessarily become wider. From hence therefore the Tone of the Voice will be alter'd, as will appear from the theory of wind-music; hence speaking through the Nose, Hoarseness of the Voice, Loss of speech, etc., which is also frequently increas'd by the Inflation, Hardness, Roughness, Erosion, and Exulceration of the Aspera Arteria and Epiglottis.

VI. Stench of the Mouth.

VI. The air which is thrown out from the Lungs in the Act of Exspiration, will necessarily carry with it several purulent Miasmata from the ulcerated Fauces, Gums, and Nostrils, and from thence contract a filthy stench. From hence it is that pocky persons who are afflicted with Ulcers of the Mouth and Nose discover it by their breath.

Few conditions in medicine are so terrifying to the physician as this one. It comes on quickly in the old syphilitic ("old" meaning from the standpoint of the infection) and soon "walks through" soft tissues, cartilage, ligament and bone. In short order it may turn the buccal, laryngeal and nasal cavities into one. These rapid mutilations often mercifully carry off the victim by pneumonia. But if he should recover his face has probably lost its god-like form, as he may like Job have escaped only with the skin of his teeth.

Ambroise Paré (1509–1590) first suggested the relationship of aneurism to syphilis. Giovanni Maria Lancisi (1654–1720) insisted upon the syphilitic etiology of aneurism in his monograph published posthumously in 1728. Giovanni Battista Morgagni (1682–1771) described its pathology. De Sauvages (1706–1767), in Nosologia Methodica (1763), makes no mention of syphilis as a cause of aneurism. Mod-

ern writers more and more incline to the view that aneurism of the larger vessels is practically always due to syphilis. Now the two conditions referred to, viz., aneurism of the great vessels and gangosa, we moderns know are always due to syphilis. Hence, if we follow the logic of the situation we are bound to conclude that syphilis has been a European disease for all time. The fact that physicians did not know these things is no reason for assuming they did not exist.

The word gangosa is now in general use in the nomenclature of medicine to describe the mutilating ulceration of the upper respiratory and gastro-intestinal tracts above referred to. U. S. Naval Medical Officers found this word in medical usage upon the Island of Guam when taken over from Spain in 1898. It is the most appropriate term for describing the condition of any of those proposed to displace it. While short and descriptive of one of the principle symptoms of this mutilation, viz., the interference with phonation (gangosa means muffled voice) it is preferable because of an ancient and honorable ancestry. Captain Holcomb in a personal communication states that the word gangosa is used in the sense here given by the oldest Spanish dictionaries accessible to him (Dictionary of the Royal Academy of Madrid 1726–1739). He also states that "gangosa" is used by Cervantes Saavedra (1547–1616) and other of the older Spanish writers. We therefore may easily supply the reason why the inhabitants of Guam used this word to define this mutilation. Guam was discovered by Ferdinand Magellan in the first circumnavigation of the globe in 1521. Spain colonized the Mariana Group in 1668. When Guam came under the United States in 1898 there were scores of these "gangosas" there. In 1909, Odell states there was one to every 35 of the inhabitants of Guam.

CHAPTER II

BRIEF HISTORY OF THE VENEREAL DISEASES

"One hour alone is in thy hands,
the hour on which the shadow stands."
—From the sun dial in Johns Hopkins
Hospital, Baltimore, Maryland

In the order of their importance to the human being we may enumerate the venereal diseases as of 1936 thus: (1) Syphilis; lues venerea, (2) Gonorrhoea, clap, chaude-pisse, (3) Climatic Bubo, lymphogranuloma inguinale; poradenitis, (4) Specific Gangrenous and Ulcerative Balanoposthitis; the "fourth venereal disease;" this condition is probably never acquired except there be some underlying dyscrasia (e.g., syphilis, chancroid, dyphtheria). It is caused by one or more stink-producing spiral, microscopic organisms of the genus Borrelia, such as *B. phagedenae,* or *B. vincenti.* In debilitated patients such as syphilitic roués, and prostitutes, this added infection often produces irreparable damage to the genital organs or rhino-labio-laryngeal regions within a few hours. (5) Chancroid; soft chancre; local venereal sore. (6) Ulcerating Granuloma of the Pudenda; granuloma inguinale; granuloma venereum.

For practical purposes the "killers and sterilizers" in this group are syphilis and gonorrhoea, though others are important because of sequelae. Climatic bubo for example often results in stricture of the rectum in women and in elephantiasis penis in men whose condition has received overzealous surgical dissection of the affected glands. As for the majority of the human race up to the present the great damage has been due to syphilis first, gonorrhoea second and chancroid, a far outdistanced third. Ulcerating

granuloma of the pudenda (granuloma venereum) is practically never seen except in negroes and in hot countries. Both climatic bubo and chancroid are ubiquitous but due to new discoveries and skin tests, they are now differentiable both from each other and from the several other venereal diseases enumerated. Until about 1860 the several venereal diseases were all considered as one. Physicians spoke of them as *the* venereal disease.

We physicians brag much of our background, of our wonderful Hippocratic Oath, of our high powered ethics and of other supreme virtues. In the "stratosphere" of medicine such heroics are justified but for the millions of us who walk and crawl upon the surface of the earth, there are sins of omission and of commission too numerous to mention. Since the creation, physicians not only have failed to *make* opportunities for themselves to study and lay up knowledge about this class of diseases, but they have positively run away, shunned and avoided any knowledge of them. We show this in a rather full account of three of the venereal diseases in the words of an address delivered to the American Association of Hospital Social Workers, New York, February 19, 1934, and published in the Medical Record, V. 140, December 5, 1934, pp. 592–594.

The great Augustan physician, A. Cornelius Celsus, gives us a glimpse of how antiquity viewed venereal diseases thus:

> The next diseases are those that affect the private parts; the nomenclature of which among the Greeks is not only tolerable, but now fully sanctioned by practice; for they are freely employed in almost every volume, work or treatise of the physicians; but with us Romans, these terms are certainly filthy, and never employed by anyone who has a proper regard for modesty in language: therefore it is evident from this explanation, that there is no small difficulty in maintaining at the same time a delicacy of expression while delivering the precepts of the art. Not that

this circumstance ought to deter me from treating on them: First, because it is my intention to comprehend everything in this work which I have found to be conducive to health; in the next place, because every person ought to know the treatment of those maladies which we so reluctantly expose to the view of another.[1]

This professional shyness resulted in examinations being omitted which are essential to a proper knowledge of the character, prevention and treatment of these damaging complaints. When the Revival of Learning began, physicians were as innocent of any *real* knowledge of these complaints as were laymen, who relied upon the biblical assurance that the Lord "will by no means clear *the guilty*, visiting the iniquity of the fathers upon the children, and upon the children's children unto the third and to the fourth *generation*." (Ex. XXXIV. 7).

Before the year 1450 syphilis masqueraded under a variety of names; mostly it was called leprosy which term in addition to true leprosy also included skin diseases other than syphilis. Medieval lazarettos housed a congeries of disease conditions which physicians made no attempt properly to define. Dr. Douglas W. Montgomery in speaking of history's debt to leprosy has shown how completely the art of diagnosis in disease was lost during the Middle Ages. It is a sad commentary upon us physicians that we allowed such wholly different diseases as gonorrhoea and syphilis to go undifferentiated until well along in the 19th Century even though Dr. Fracástoro knew syphilis to be distinct in 1530. Many such medical myths would not have carried over to us of the present day had Celsus' advice regarding frankness in speech, when it is *meet* to be frank, been carried out. One practically never sees in the newspapers of today the names gonorrhoea, syphilis and chancroid. There

[1] "De Medicina" discovered by Thomas of Sarzanne, afterwards Pope Nicholas V (1447–1455) at Milan in 1443. First printed in 1478 (Celsus–B.C. 25–A.D. 50).

is little hope of educating the masses unless the newspapers and movies have a complete change of technique here. They must lose their gun-shyness and boldly use the names which define. Otherwise, the venereal question will remain in its present highly unsatisfactory condition indefinitely. That this shyness on the part of those agencies which alone can be depended upon to educate the masses is *purely* artificial is shown by the fact that the newspapers and movies display material daily on sex matters which is morally degrading. Education of the type here recommended is morally uplifting. Their shyness of speech about the venereal diseases is in part due to an outmoded medical ethics which taboos the teaching of such technical material to laymen.

The male of the human species has been handling prophylaxis against this terrible triad since long before Xenophon managed that memorable march of the 10,000. His Excellency has made a failure of it! Wars and military operations have, since the beginning of recorded history, spread venereal diseases widely, while during intervals of peace the degree of subsidence has depended upon the racial capacity for personal cleanliness. Today we may say that the incidence of venereal diseases is an index of the physical and moral cleanliness of any people. A possible exception to this statement will be considered later, but among Christian and Hebrew peoples the preachers and the rabbis have done more to lessen the damage from these complaints than have the physicians. Indeed, except among controlled groups of men such as soldiers and sailors, prevention has been up to the conscience and cleanliness of the individual. Among highly civilized peoples today, the incidence of syphilis is under ten per cent while among the more backward and uncleanly it may rise to the vicinity of eighty per cent.

Henceforth we will confine ourselves largely to syphilis because measures which control it also control gonorrhea and chancroid. Furthermore syphilis is the *only* infectious constitutional disease of man which is transferred congenitally. No other human infectious disease can meet the "third and fourth generation specifications" of the 7th verse of the 34th chapter of Exodus. Among primitive peoples syphilis is one of the eruptive diseases of childhood like measles. But measles is an *acute* self-limited infection while syphilis is a chronic one which, when untreated, often lasts for life. The personal hygiene and cleanliness of civilized man make of syphilis predominantly a venereal acquisition of *adults* though even here it often is innocently acquired and its initial sore is *extra*-genital rather than genital as with *venereal* syphilis.

For sheer, gripping interest, few chapters in the history of man and medicine can compare with the story of syphilis. There are two theories as to how the human race came by this disease, one that man has suffered from it certainly since his emergence from savagery, the other that the *forty-four* returning sailors of Columbus' first voyage gave Europe her "primary infection." This latter view may be sent to the limbo with many other medical fallacies. It can be definitely proven that Europe has known syphilis from antiquity. The ancient ancestry of syphilis screams from the sexual degeneracy of some of the ancient peoples as depicted by contemporary profane writers and as set down in Sacred Writ. Its implications are set forth in all their lurid reality by Jacques de Serviez, (1679–1727), whose remarkable work, "The Roman Empresses or the History of the Lives and Secret Intrigues of the Wives of the Twelve Caesars," one may not read without the conviction that ancient man must have paid for such sexual sins

just as has modern man even to the third and fourth generation.

The development of knowledge regarding syphilis has been a slow and tedious process. For many centuries it was thought to be the same as gonorrhea. Indeed this idea was not entirely dispelled until the year 1858 when the French physician, Philippe Ricord was able to confirm the work of the English surgeon, Benjamin Bell (1749–1806) who, some fifty years previously (1792), had demonstrated the non-identity of gonorrhea and syphilis. At about this same time (1852) the French physician P. I. A. Leon Bassereau (1810–1887) published his careful observations which resulted in demonstrating that there is a type of venereal sore the virus of which, unlike syphilis, remains local, while the virus from the syphilitic sore (chancre) spreads throughout the body causing constitutional syphilis. This local sore is now called chancroid, and in 1888 the Italian physician, Augusto Ducrey, showed that it is caused by a minute vegetable organism. Gonorrhoea is caused by a type of vegetable microscopic organism, entirely different from that causing chancroid. This was discovered by Albert Neisser, a physician of Breslau, Germany, in 1879. The organism causing syphilis resisted all attempts at detection until the year 1905. In that year two German protozoologists, Fritz Schaudinn and Erich Hoffman, discovered it in the form of a corkscrew-shaped, tenuous, flexible, motile, microscopic organism, very difficult to stain or otherwise demonstrate. This is now known as *Treponema pallidum* and is demonstrable in all tissues of the human body when undergoing syphilitic change. The cause of each of these diseases is therefore distinctive and its demonstration is a matter of routine in the diagnosis of the particular disease.

These three viruses have romped their unholy course over man since the dim dawn of history. Until 1792

Examen Poeticum:

John BEING *Bentley*

THE THIRD PART

OF

Miſcellany Poems.

Containing Variety of

NEW TRANSLATIONS

OF THE

Ancient Poets.

Together with many

ORIGINAL COPIES,

BY THE

Moſt Eminent Hands.

Hæc potior ſoboles: hinc Cœli tempore certo,
Dulcia mella premes.——Virgil. Geor. 4.

In medium quæſita reponunt. Ibid.

LONDON:

Printed by *R. E* for *Jacob Tonſon*, at the *Judges Head* in *Chancery-Lane*, near *Fleetſtreet*.

M DC XCIII.

they were considered as one disease and spoken of as *the* venereal disease. In medical literature they were included under the term gonorrhoea, a word harking back to ancient Greek in its present form (γονόρροια from γόνοσ seed and ῥοία flux, so-called because it was supposed to be a discharge of semen).

Knowledge about this group of diseases was in this jumbled condition up to the birth of the Italian, Giroloma Fracástoro, in the year 1484. This child became a great physician and before his death in 1553 had made and recorded many advances for medicine. In 1530 Fracastorius (his name is usually Latinised in medical literature) wrote an allegorical poem which was published at Verona in which the shepherd to whom he ascribes the symptoms of this dread disease, is named "Syphilus." Before this date physicians knew this group of symptoms under many names. It was often called "lues *venerea*." This word lues is the Latin for plague, a very good name because the "venereal one" has "plagued" many millions of human beings both before and since Fracástorius pinned the name syphilis upon it. In his verses of 1530 this poet-physician described the disease in the main as we know it today. John Dryden in his Examen Poeticum published in 1693 was one of the first to give a translation of this remarkable poem. In Dryden's translation (see Plate 5 for the title-page of Dryden's Miscellany Poems), we note the tendency to shove the name syphilis always into the background as if it were the skeleton to be kept in the closet. The Third Part of the Miscellany Poems contains 468 pages but the poem of Fracástorius has a separate pagination of 78 pages. The title-page to this translation is shown in Plate 6. Mr. Tate who "English'd" the poem did a very excellent job of it as may be seen from Plate 7 representing pages 68 and 69. At about the middle of page 69 is the translation of the verse in which the word from which "Syphilis" is derived first appeared in the litera-

ture of medicine. It may not be inappropriate to state at this point that the tendency to keep this word always in the background shows its evil effects because people in general are just about as ignorant of the facts of syphilis today as they were in 1693 when Mr. Tate made this translation.

While Fracástorius gave a pretty good general idea of syphilis for the date 1530, this disease has not been worked out in all its evil consequences even at the present time. The list of morbid conditions which are due to *Treponema pallidum* is quite extensive. The nervous and vascular systems alone give some of the most distressing examples of the effects of the virus upon the human being. Tabes dorsalis began to be considered syphilitic about 1860. General paralysis of the insane, described in 1820, was first considered as due to syphilis in 1852. It remained for the Japanese physician, Hideyo Noguchi, to *prove* the syphilitic origin of these two degenerations of the brain and spinal cord by actually demonstrating *Treponema pallidum* in these nervous structures from men dead of these diseases. This he accomplished in 1913. These two distressing accidents often strike men in the very prime of life and quickly make human wrecks of them. So also with aneurism of the aorta. There is the tropical condition which goes under the disgusting name of "Yaws" which is but another manifestation of syphilis now operating upon the filthy and unwashed whose victims get little or no treatment. The condition known as juxta-articular nodes is one usually found in primitive syphilis (yaws) where there has been no treatment. Gangosa, a horrible, mutilating affection of the face in which oftentimes the nasal and buccal cavities are converted into a yawning chasm, is now rarely seen except amongst backward races where treatment is neglected. This was formerly rather common in ancient and medieval

Think not it lies in any *Grecian's* Pow'r,
To take my Life before the fatal Hour.
When that arrives, nor good nor bad can fly
Th' irrevocable Doom of Deſtiny.
Return, and to divert thy thoughts at home,
There task thy Maids, and exerciſe the Loom,
Employ'd in Works that Womankind become.
The Toils of War, and Feats of Chivalry
Belong to Men, and moſt of all to me.
At this, for new Replies he did not ſtay,
But lac'd his Creſted Helm, and ſtrode away:

His lovely Conſort to her Houſe return'd:
And looking often back in ſilence mourn'd:
Home when ſhe came, her ſecret Woe ſhe vents,
And fills the Palace with her loud Laments:
Thoſe loud Laments her ecchoing Maids reſtore,
And *Hector*, yet alive, as dead deplore.

STPHI-

SYPHILIS.

Written

(IN LATIN)

By that Famous

POET *and* PHYSICIAN

Fracaſtorius.

ENGLISH'D BY

Mr. *TATE.*

PLATE 6.

In that dire Seaſon this Diſeaſe was bred,
That thus o'er all our tortur'd Limbs is ſpread:
Moſt univerſal from its Birth it grew,
And none have ſince eſcap'd or very few;
Sent from above to ſcourge that Vitious Age,
And chiefly by incens'd *Apollo*'s Rage,
For which theſe annual Rites were firſt ordain'd,
Whereof this firm Tradition is retain'd.

A Shepherd once (diſtruſt not ancient Fame)
Poſſeſt theſe Downs, and *Syphilus* his Name.
A thouſand Heifers in theſe Vales he fed,
A thouſand Ews to thoſe fair Rivers led:
For King *Alcithous* he rais'd this ſtock,
And ſhaded in the Covert of a Rock,
For now 'twas *Solſtice*, and the *Syrian* Star
Increaſt the heat and ſhot his Beams afar;
The Fields were burnt to aſhes, and the Swain
Repair'd for ſhade to thickeſt Woods in vain,

times. While these people who do not treat themselves are liable to the more severe forms of mutilating syphilis, yet it is now known that their immunity is afterwards much more perfect than in those who treat actively from the beginning of the disease. The chance of mutilation is so great, however, that civilized man *never* withholds treatment.

In addition to the acquired disease many of these manifestations may appear in the congenital condition, so that a child, innocently infected from birth may, in after life, manifest these mental and mutilating forms of the disease. Syphilis is known to copy many skin diseases and other constitutional states. Doctors speak of it as protean in its manifestations. This confusing tendency of syphilitic infection prompted the dictum of the great Osler who said "Know syphilis in all its forms and manifestations and all other things clinical will be added onto you": A gospel for the physician!

There have been many attempts in past ages to do away with this disease and to prevent its spread. Before our knowledge was very considerable, man exacted severe punishment from those infected with this virus. In biblical times mutilated victims were driven from the population and made outcasts. This same practice continued through the Middle Ages and even down to the present time we have never been able to shake off the medieval harshness towards those infected with the venereal diseases. This attitude of making an outcast of the victim is responsible for the universal lack of cooperation amongst the masses. It is one of those queer perversities of the human that however "altruistic" he may be *before* infection, he gets a grim satisfaction out of handing his infection to someone else "just for spite." Further a man will lie about venereal disease when he would perhaps give his life for a principle in other matters.

Woman has ever had to bear the brunt of being the purveyor of venereal diseases whereas a trace of fairness and chivalry would have prompted us to see that in this status she was but the instrument of man's lubricity, for prostitution is the oldest of all professions. While woman has always carried the stigma of being the purveyor of venereal diseases, she has also borne the brunt of producing the family which, under all civilizations, is the unit of government. It will at once be apparent that as she wishes this unit to be as pure as possible, she now for the first time in history has the political power to make her desires effective.

In the United States venereal diseases are reportable in all states in the union except Nevada and Pennsylvania. With our system of government it is difficult to make this reporting effective and it is practically certain that it will be impossible to lower the incidence of this class of diseases unless the laws are changed. A man having acquired one of the venereal diseases will resort to every known device to prevent his name being connected with it. State and Municipal Health Services may help to *discourage* the spread, but it is unlikely that the rate will be materially decreased below what obtains now for the more civilized peoples. By more stringent reporting and identification of the carriers of these infections, the German Republic is in a fair way to securing as good results as may be obtained by this system. It is understood that the Soviet Republic is making rapid advances in lowering the incidence of the three venereal diseases. Their system also contemplates the more perfect identification of the carrier and the most thorough treatment and isolation of him. Also, marriage and divorce are so easy as to make the "Hollywood method" pale into insignificance by comparison. Our understanding of the system in effect in Moscow is that a man and woman may get married with little cost and

little ceremony and that the same is true as regards the dissolution of such a marriage. This may be accomplished by *one* of the two simply publishing the fact. While such a system as this when accompanied by the severe methods of identifying the carrier and isolating him may result in lowering the venereal rate almost to the vanishing point, yet to Nordic and Anglo-Saxon civilizations which make the family the unit of society and of government such a system is repulsive beyond description. Rather than give up the ideals and traditions which surround courtship and marriage and the rearing of the family under the best conditions, these civilizations would prefer to have the high venereal rates continue.

A suggestion which has been hinted at earlier in this article is that woman, who has the power of enforcing her wishes in regard to the family, insist that the laws be so arranged that when two people contemplate matrimony the right of each contracting party may be safeguarded and every means the state can apply to uncover venereal disease in those applying for a marriage license be a matter of law. It is thought that if the prospective family can be started off with the law behind its purity, then our system of leaving responsibility for what takes place afterwards with the heads of the family is about the best we can get out of it. The medical profession may always be depended upon to bring as much pressure as possible to bear upon the population with the end of lowering the incidence of these damaging diseases. Let us preach both chastity and prophylaxis.

CONCLUSIONS

1. Popular education of the masses in a knowledge of sexual diseases can come only through the newspapers, moving pictures and other means of *popular* education.

2. The victim of venereal disease should be treated like any other sick person.

3. Woman as the most interested unit in the purity of the family, should demand that the laws give her every assurance possible that no taint exists in either party to a marriage.

4. Beyond this the conscience should guide, but the state should publish a caveat both to those who seek and those who serve sexual favors.

CHAPTER III

HERO WORSHIP

"Il ne faut jamais travailler dans le but de soutenir une théorie, parce qu'alors L'esprit se prévient et n'a-perçoit plus que les choses par lesquelles sont confirmées les opinions qu'il s'est faites d'avance. Notre seul but doit être la decouverte de la vérité."

G. Cuvier, Opinion sur les theories en général.

When the English, French, Dutch and Spanish Governments began to expand and establish overseas colonies there was much rivalry in discovery and in attaining permanent settlements on distant shores. The 16th, 17th and 18th Centuries were notable for the acquisition of foreign possessions on the part of all these governments. During the same period African slaves were introduced into overseas possessions of all nations. Of course, the diseases of Africa were thus given world-wide tropical distribution, and wherever such slaves were introduced into temperate regions the diseases from which they suffered were also introduced. In this way, English colonial America received and was able to propagate many of the diseases of tropical Africa. Yaws so-called was one of these.

During these days of Colonial Expansion, medical men and other types of scientists visited these colonies and often wrote of the diseases encountered. Scattered through the medical literature of the 17th and 18th Centuries are many references to "pian," the French synonym for "yaws," a name of the Guinea Coast of Africa.

One of the earliest of these descriptions is by Jean Baptiste Labat (1663–1737). He was a French Dominican Missionary and after teaching philosophy at Nancy, he was sent to the West Indies, where he ex-

plored the islands, and according to the Columbia Encyclopedia, founded the city of Basse-Terre. In 1722 this priest, known to the literature of the West Indies as Père Labat, published a number of volumes entitled "Voyages aux Iles de l'Amerique." In Vol. IV, pp. 358–367, he speaks about "pian" and we will quote a few paragraphs in order to show what pian was considered to be some 200 years ago. Père Labat says:

The Caraibes are quite subject to "pian." This disease is peculiar to America, it is the normal thing there. Every child that is born there has it almost at its birth, although the father, mother and nurse are healthy or seem so. Pian is usually called "The Neapolitan disease" by the French, and the "French disease" by the Italians. Everybody knows it under the name of the venereal disease. It *should* be called the *American disease* because it began in that country and from there the Spaniards brought it to Europe.

It was not known in France before the Campaign of Louis XII for the Conquest of Milan and the Republic of Naples. It is indeed a scourge to the French in all their conquests, and it is now so frequent that there is no other disease that gives more trouble to physicians and surgeons.

However it is much more common among the Spaniards than with us. This is because *they* first brought it to Europe. They do not hide it and persons of the greatest distinction usually have it more frequently than the common people. As everybody among them has it, they think that other nations have it in the same way.

Ambroise Paré in his Manual of Surgery, reports that in his time, two young men from Paris having made a journey to Italy brought the disease home with them. They called it then "Pelade" because it made the hair of the patients fall out. It is from this that they owe the invention of periwigs which were first very simple, and consisted of some hair sewn into a cap of leather or wool. Those that had the "pelade" covered their heads with it while awaiting the time when their hair would grow again. If the people of that time should come back now, they would believe that all of us had the "pelade" since they would see everyone with a periwig.

This good priest wrote these paragraphs 132 years after Ambroise Paré's death, but the urge to disown the horrible child, syphilis, always especially strong with the clergy, is shown here in its essence. From the year

1400 down to 1936 all nationals, creeds and professions have put forth much effort and ingenuity and displayed much irascibility in efforts to pin this ill-smelling flower upon any other people than those who were writing about it. Here was a chance to pin it upon the American Indian, and they all took to the idea with éclat. Every language of the civilized world of the period between the two dates given was used to prove "truth to be a liar" and hand over the origin of syphilis to the American Indian. It is to the eternal shame of the medical profession that, knowing the epidemiology of syphilis, and knowing the claims made by those who attributed this disease to the return of Columbus' sailors from the *first* voyage, knowing that only 44 men returned to Europe from this voyage, nevertheless lent their full professional force to the propagation of this monstrous libel. The whole scheme is shot through with discordance, meanness and mendacity. There is nothing which the logic of a high-school boy would fail to throw out as irrelevant did he know all the facts and reasons behind this hypothesis. Yet some of the names that loom large in the medical literature of Europe and America have "taken orders" from the priests and complacent copiers of medieval authorities on this important matter. Well say these copyists what difference does it make and why get heated up about it? The answer is that the scientific attitude presupposes that one has facts to reason on wherever possible, and second, that syphilis is one of the few diseases which casts light upon ancient pathology. It has been already shown that many diseases with like symptomatology were thrown together under one name. This was particularly true of diseases with *skin* manifestations. "Leprosy" as already shown included half dozen diseases as we classify them today. One of these was syphilis. They had a type of leprosy which was conveyed by sexual intercourse, and from which

its victims recovered. True leprosy, elephantiasis graecorum, as the ancients called it, is incurable. Furthermore, in ancient and medieval times, there existed those conditions which we know today flow out of syphilis and syphilis alone such as aneurism of the great vessels and gangosa. Bubas, yaws and syphilis are synonymous when it suits the argument of these "Americanistas" but when they are arguing upon identity as between yaws and syphilis these terms are *not* synonymous. It is a strange coincidence that those who contend for the American origin are usually in the same camp with those sloven thinking brothers, the dualists.

F. B. De Sauvages was a contemporary of Jean Astruc, the foremost medical partisan the "American origin" ever had. De Sauvages published a work in 1763 called "Nosologia Methodica" the Latin for systematic nosology. This work was constructed along the lines of Karl Von Linne's Systema Naturae for botanical nomenclature. Medical nomenclature does not lend itself to so rigid a system as does botanical and zoological naming. There is no universally satisfactory medical nomenclature even up to the present time. Nosologia Methodica, however, had many virtues, the chief of which was that it has transferred down to us the very best descriptions of all those diseases which physicians and surgeons had to deal with at the date of its publication. Like certain types of period furniture, many of his descriptions of diseases are things of beauty and a joy forever. His nosologia went through two Latin Editions (1763 and 1768) and was translated into his own language, French, in 1771. The work unfortunately has never been translated into English. Up to De Sauvages' time physicians considered yaws as simply a severe type of syphilis, contracted usually by sailors or Europeans visiting tropical countries. Yaws was usually

contracted from negro prostitutes. De Sauvages gave a description of it from hearsay evidence. His Latin text is translated into English below. It is so evidently a "flop" that we today would not give it a thought. But coming to us out of the "Latin past," with medical scientific traditions surrounding it, the description of this entity (?) has so impressed itself upon the student mind of the intervening medical generations, that, (such is the force of "authority") we find innumerable writers on tropical diseases at the present time still trying to prove that De Sauvages was correct in his description of yaws as a distinct disease. Elsewhere, we have ventured the thought that if De Sauvages could come back to life today and get the feel of our modern knowledge of syphilis, he would not only repudiate yaws as a distinct entity but would read us a lesson in the importance of a return to inductive reasoning in medicine and upon the folly of "researching" to prove "our side" right, rather than to discover facts and principles.

Twenty-six years before De Sauvages brought out the 1st Edition of Nosologia, John Brickell, M.D., published at Dublin a book which throws much light upon the conditions which give rise to yaws. Here is the quaint wording of the title-page to his book:

> The Natural History of North Carolina. With an Account of the Trade, Manners, and Customs of the Christian and Indian Inhabitants. Illustrated with Copper Plates, whereon are curiously Engraved the Map of the Country, Several Strange Beasts, Birds, Fishes, Snakes, Insects, Trees, Plants, etc. By John Brickell, M.D., Nostra nos in urbe Peregrinamur, Cic. Dublin: Printed by James Carson, in Coghills-Court, Dame Street, Opposite to the Castle Market. For the Author, 1737.

Brickell's description in our opinion is that of a condition which has frequently confronted isolated and ignorant people in past ages. It is the same as (1) The Sibbens of Scotland, 17th Century, (2) Radesyge of

Norway and Sweden, 17th and 18th Centuries, (3) Amboyna pimple; Disease of Saint Euphemia, and Pian of Nérac which three were described in medical literature of the 18th Century, (4) Disease of St. Paul's Bay or Syphiloid of Canada, English disease. This made rapid progress on the shores of Lake Huron in 1760 and in a few years spread to the Indians of a greater part of Canada. In 1785, 5,800 individuals were suffering from it there, (5) Endemo-epidemics of syphilis, on the coasts of the Adriatic, Scherlievo, Male di Breno, Frenga, etc., of the 18th, 19th and 20th Centuries, (6) Disease of Chavanne-Lure described for certain places in France during the first half of the 19th Century. All the foregoing are described in detail in "A Treatise on Syphilis" by Dr. E. Lancereaux, The New Sydenham Society, London, 1868. Such epidemics or rather such types of Endemic syphilis occur in Russia and Yugoslavia at the present time. The usual characteristics are innocent or undiscovered primary, severe secondary rashes and tertiary mutilations.*

In his Natural History of North Carolina, Brickell thus describes yaws:

Pages 48, 49.

The Yaws, are a Disorder not well known in Europe, but very common and familiar here; it is like the Lues venerea, having most of the Symptoms that attend the Pox, such as Nocturnal Pains, Botches, foul Eruptions, and Ulcers in several parts of the Body, and is acquired after the same manner as the Pox is, viz. by Copulation, &c. but is never attended with a Gonorrhoea in the beginning. This Distemper was brought hither by the Negroes, from Guinea, where it is a common Distemper amongst them, and is communicated to several of the Europeans or Christians, by their cohabitating with the Blacks, by which means it is hereditary in many families in Carolina, and by it some have lost their Palates and Noses.

* In this connection see the important and convincing article entitled "Endemic Syphilis in Bosnia and Herzegovina" by Ernest I. Grin, M.D. *The Urologic and Cutaneous Review,* Vol. XXXIX, No. 7, July 1935, pp. 482–487.

This Distemper though of a venereal kind, is seldom cured by Mercurials, as I have often experienced, for I have known some undergo the Course of three Salivations to no purpose, the virulency still continuing as bad as ever: Wherefore I judge it not amiss to set forth the most effectual method for curing it, which I have often experienc'd, and never without good success (during my residence in those parts) though the Distemper was of ever so violent a nature, or long continuance; it is as follows:

Take four Ounces of the Bark of the Spanish Oak, two ounces of the middle Bark of the Pine Tree, two Ounces of the Root of Sumack, that bears the Berries, of these Ingredients make a strong Decoction, whereof let the Patient drink a full Pint milk-warm and half a Pint cold, this gives a strong Vomit, by which abundance of filthy Matter is discharged. This is what is to be done the First Day. Then let the Patient drink half a Pint three times a Day, viz. in the Morning, at one o'Clock in the Afternoon, and at Night, for six Weeks; and if there be any outward sores, wash them clean five or six times a Day with part of the same Decoction, 'till they are healed up, and the Patient becomes well.

The Patient must abstain from all sorts of flesh Meat, and Strong Liquors during the same Course, his principal Diet must be Broth, Gruel, Penaeda, and the like. They may boil the above quantity of Ingredients four times, if more, it will be too weak; this Method effectually cures the Yaws in the same time, and the Patient becomes as strong and healthy as ever. I have here given the true method of the Cure of this Distemper, it being little known in Europe.

Pages 396, 397.

The Pox is to be met with amongst some Nations of these Indians, being as it is Reported communicated to them by the Europeans, it being a Distemper entirely unknown to them before their arrival. By this Disorder, some of them have lost their Noses, and particularly one of their greatest Conjurers, whom I have seen and conversed with; but whether or no this Distemper was known to them before the Christians came amongst them, I will not take upon me to decide it, being in no way material to my present design, which is only to satisfie my Readers with the Advantages and Disadvantages that are to be met with in this Spacious part of the World.

These savages of late cure this Distemper with certain Berries (that grow in this Province) which Salivate like Mercury, notwithstanding they use Sweating and strong Decoctions with it, as they do almost upon every Occasion, and when they are in the

greatest Extremity of Heat, leap into the Rivers or Ponds of Water, by which Practice many have lost their lives, yet at present, it is not sufficient to deter them from this kind of Practice.

The Yaws, is a venereal Disorder (as I said before) in all respects like the Pox, only, it is not attended with a Gonorrhoea in the beginning, but having all the other Symptoms that attend that Disorder, such as Cutaneous Eruption, Nocturnal Pains, &c. This Distemper of late has been communicated to the Indians by the Christian Traders, and though it is not very common amongst them, yet some few have lost their Noses by it, and others are become most miserable Spectacles by neglecting it's Cure; at last they make a shift to cure or patch themselves up, and live for many Years after; such Men commonly turn Doctors amongst them, and some of these No-Nose Doctors are in very great Esteem amongst them. The Juice of the Tulip Tree is used by the Indians as a proper Remedy for this Distemper.

Later we will give the complete translation of the article on framboesia by De Sauvages and in order to bring into relief the pernicious influence of "authority" in carrying over from generation to generation of medical men the mistakes and fallacies of our forefathers, we will give the following example: In the first edition (1898) of his classic on Tropical Diseases, Patrick Manson referring to the yaws-syphilis question, always a matter of vituperative debate with the profession in Great Britain, expressed the thought that: "The discussion is bound to continue until the respective germs of yaws and syphilis have been separated, cultivated and inoculated." Since that time a world of facts and principles in the immunity of the treponematoses have been discovered. In 1905, *Treponema pallidum* was discovered and a few months later the so-called *Treponema pertenue*. Then the Bordet-Gengou reaction was adapted to the determination of what was syphilitic and what was not. As the Wassermann reaction it has become one of the most important diagnostic procedures ever perfected, by any physician in all the ages. Then came the discovery that such animals as monkeys, rabbits, mice,

and others could be infected with treponemata. Since 1898 much has developed in the way of new pharmaceutical preparations for the treatment of treponematosis. Arsenic, bismuth sulphur, silver, antimony and other metals and non-metals have been combined into more effective preparations for the treatment of treponematosis. It has been determined that there is developed in man and animals infected with *Tr. pallidum* an actual immunity and that this takes considerable time to develop so that if the experimenter does not wait until this immunity develops it is possible to reinfect his animal with the same organism as used originally. This immunity work has thrown completely out of account the work of older investigators in the field of framboesia such as Charlouis and Paulet who found it a simple matter to infect men suffering from syphilis with so-called yaws.

As each item in this newer knowledge of syphilis has unfolded itself it has come about that yaws acted exactly in a like way. The morphological differences between *Tr. pallidum* and *Tr. pertenue* so minutely described for the period from 1905 to 1910 have vanished into thin air. Attempts to show immunological differences between these antigens have utterly failed. The pharmaceuticals that cure syphilis act upon yaws in a like way and to a similar degree.

Finally the histological differences supposed to exist between the granuloma of syphilis and that of yaws will not hold water. Perhaps the most important paper ever published upon this side of the question is entitled "Contribution to the histo-pathology of yaws" by J. M. H. MacLeod and published in the British Medical Journal, September 21, 1901. Most of the researches published since this one have stuck quite closely to MacLeod's findings. This paper is full of pathological inconsistencies which have been

referred to by this writer in a paper entitled "Hero Worship and the Propagation of Fallacies," Annals of Internal Medicine, Vol. 5, No. 8, February 1932. A second paper by this writer entitled "The Trouble with Yaws," and published as an Editorial in The American Journal of Clinical Pathology, Vol. 2, No. 3, May 1932, explains in more detail the pathology of the framboesioma and compares framboesia with syphilis and smallpox to show that the framboesioma is not a pure treponematosis (not a distinct pathological entity) as MacLeod describes it, but is the result of *two* pathological processes, one inflammatory overlying a treponematous infiltration of the derma.

MacLeod's Summary of the Histological Changes Which Suggest that Yaws and Syphilis are Different Histological Entities

(a) Cellular Infiltration:—The Plasma cells are not so definitely clustered around the vessels in yaws as they are in syphilis, nor do they ever form foci suggesting a tuberculous nodule, as they occasionally do in the latter disease. They are seldom arranged in rows, which frequently occurs in syphilis. Large multinuclear cells (chorioplaques) and true giant cells which may be present in syphilis are absent. No hyaline degeneration, such as may be found in syphilis is detected in the plasma cells.

(b) Fibrous stroma:—The rarefaction of the collagen is more marked in yaws than in syphilis: organization is not detected, and colloidal degeneration, such as occurs in a syphilitic gumma, is absent.

(c) Blood Vessels:—There is no tendency to thickening of the vessel wall or to endothelial proliferation such as so frequently pertains in syphilis.

(d) Epithelium:—The proliferative changes in the epidermis in yaws are only equalled in syphilis in the condylomata, while the marked tendency of the stratum corneum (hyperkeratosis) which is an invariable characteristic in yaws, is unusual in syphilis.

The report from which this summary was made, excellent though it be, does violence to that attitude of disinterestedness which we like to call the "scientific attitude." First, Dr. MacLeod was only 26 years

old when the report was made and, acknowledging he had not had any clinical experience with the disease, we may infer from his youth that his pathological judgment had not yet reached the high standard it afterwards attained.

Next, the writer (Dr. MacLeod) had his material sent from India and we have here his paragraph which describes it:

> For the materials on which this paper is based I am indebted in the first place to Sir William Kinsey, late Inspector-General of Hospitals in Ceylon. He kindly obtained for me from the Kurunegelie Hospital, Ceylon, a variety of the lesions of yaws in different stages of evolution which had been excised for the purpose of examination by the surgeon in charge of the cases. In connection with six of the cases in which a biopsy had been performed the hospital case-sheets were also sent to enable me as far as possible to picture the exact stage of the disease and the clinical type of the lesions in each of the cases. Squamous papules, larger crusted papules, varying-sized tubercles, one or two lesions commencing to fungate, and a number of intermediate types were contained among the specimens which were sent. These were preserved in spirit and for ordinary histological purposes they were in no way injured by their journey from Ceylon.

The author constantly refers to the "two" diseases and hence believes from the start that he is detailing the histology of a distinct entity. In other words, his paper starts off to prove a preconception rather than to find the facts. Furthermore, the slight differences which he thinks he finds are not greater than such differences as might exist between individual cases of the same disease. However, we know there are slight differences in the reaction of the skin of colored races to injury from that which obtains among white races. An instance of this is the great tendency of colored skins to keloid growth with trauma.

MacLeod speaks of the variety of bacteria in the yaws lesions. Since the discovery of *Treponema pallidum* we know that all these simply aggravate the

lesion produced by that organism. The pustular syphilide, the condyloma, the framboesiform syphilide are all super-lesions so to speak, for the only true and pure syphilide is the roseola. The *Treponema pallidum* does not liquefy tissue and produce ulcers. It is the contaminating cocci which do that when the syphiloma has ulcerated and granulations form preparatory to healing we have not only the strawberry appearance of the lesion which gave the name framboesia to so-called yaws, but an exact copy of the histology of the fungating framboesioma, papillary projections, interpapillary pegs of epidermis, polynuclear miliary abscesses and the whole array of features described as *distinctive* of yaws. It is manifestly not correct to compare a secondary eruption as regards its histology, with what occurs in a tertiary lesion. The tissue picture in a pustular syphilide is of course different from that of a gumma. Take the vascular differences described. Yaws is described as showing little tendency to endothelial proliferation, while syphilis shows this to a greater extent. In all the framboesides we have heavy bacterial infection of the lesion caused by the *Treponema*, i.e., we have an inflammation reaction overlying the "treponemoma." Now what are the vascular changes of inflammation? Dilation, manifested by increased redness, the diapedesis of polynuclear cells and perhaps abscess formation. The dilatation of the blood vessels is intended to flush out the area of impurities and the polynuclears to phagocytize the bacteria. MacLeod's photomicrographs show all these changes taking place. In other words, we know now, 34 years after these histological pictures of yaws were made, that the changes described are due to several different microorganisms. Yet such is the scientific lag that they still pass current, and are copied in our textbooks as distinctive of what we now know is a pure treponematosis.

To come back to the assurance of the 1898 authority quoted that it would be time enough to decide upon unity or duality of viruses as between yaws and syphilis after the causes of syphilis and yaws were determined. The cause and much more have been determined during the intervening 38 years and all these discoveries point unmistakably to identity, but such is the lag and inertia in medicine that we find scores of "researchers" today still trying to prove that DeSauvages was right when he "text-booked" framboesia as a distinct disease. To show further the practical immortality of mistakes and fallacies once they get dug into medicine, there are given here the conclusions to a highly meritorious paper published by Ashburn and Craig in 1907. Also conclusions given by Castellani at about the same time and from a similar research.

General Conclusions

As a result of our observations, both clinical and experimental, we believe that we are justified in drawing the following conclusions:

1. That *Treponema pertenuis* is the cause of yaws.
2. That *Treponema pertenuis* is constantly present in the serum from yaws lesions.
3. That the variations in morphology of *Treponema pertenuis* are explainable by the deformities produced during the preparation of the serum for examination.
4. That *Treponema pertenuis* and *Treponema pallidum* can be differentiated by the results obtained from the inoculation of monkeys.
5. That the inoculation of the serum from human yaws lesions containing *Treponema pertenuis* causes yaws in monkeys and that the organism can easily be demonstrated in the lesions of the infected animals.
6. That the length of the period of incubation in *Cynomolgus philippinensis* Geoff. is approximately twenty days.
7. That the duration of the inoculated disease in this species of monkey varies from twenty-one to eighty-four days.
8. That yaws and syphilis are distinct diseases.
9. That *Treponema pertenuis* can be demonstrated in sections of yaws papillomata by the Levaditi method.

Castellani, in an article published in the Journal of Hygiene for July, 1907, and only reaching here after the preceding paper had gone to the printer, draws the following summary and conclusions:

"1. Monkeys are susceptible to yaws. The skin eruption on the monkeys I have experimented with (*Semnopithecus priamus* and *Macacus pileatus*) is, as a rule, confined to the seat of inoculation, but the infection is general, as is proved by the presence of the *Spirochaeta pertenuis* in the spleen and lymphatic glands.

"2. Material obtained from persons suffering from yaws and *apparently* containing *Spirochaeta pertenuis* only is infective to monkeys.

"3. When the *Spirochaeta pertenuis* has been removed from this material by filtration, the latter becomes inert.

"4. The inoculation of blood from the general circulation and blood taken from the spleen of yaws patients into monkeys may give positive results.

"5. The incoulation of the cerebro-spinal fluid of yaws patients gives negative results.

"6. Monkeys successfully inoculated with yaws do not become immune for syphilis.

"7. Monkeys successfully inoculated with syphilis do not become immune for yaws.

"8. By means of the Bordet-Gengou reaction it is possible to detect specific yaws antibodies and antigen.

"9. Yaws antibodies and antigen are entirely different from syphilitic antibodies and antigen.

"10. The presence of the *Spirochata pertenuis* in monkeys experimentally inoculated; as well as in yaws patients, is practically constant in the unbroken eruptive lesions; the *Spirochaeta* is frequently present in the spleen and lymphatic glands.

"11. Yaws is generally conveyed by actual contact, but under certain circumstances it may be conveyed by flies and possibly by other insects."

The above conclusions are from an article entitled "Observations upon *Treponema pertenuis* Castellani of Yaws and the Experimental Production of the Disease in Monkeys," by P. M. Ashburn and Charles F. Craig (From the Laboratory of the United States Army Board for the Study of Tropical Diseases, Division Hospital, Manila, P. I., and The Biological

PLATE 8. A present day African chief from the Belgian Congo. Kindness of E. R. Kellersberger, M.D., Bibanga, Congo Belge, Africa.

Laboratory of the Bureau of Science), The Philippine Journal of Science, 1907.

About all that is left intact of these two researches is that syphilis is caused by *Tr. pallidum* and yaws by an organism which is indistinguishable. Even the names they used, *Treponema pertenuis* and *Spirochaeta pertenuis*, have been thrown out by the rules of zoological nomenclature. The findings of these researches remaining intact in 1936 are precisely the ones granted by those upholding unity of viruses at the time these researches were published. Yet textbooks on bacteriology published in 1935 quote the discredited findings as proof of duality and that yaws and syphilis are distinct.

The clinical fallacies which persisted up to the middle of the 19th century, in this particular subject are now paralleled by the laboratory ones and perpetuated right along in current issues of books on tropical medicine and bacteriology.

SLAVERY AND YAWS

The question is often asked why yaws did not persist in the Southern States of the American Union in the offspring of African slaves. Indeed why do we not have yaws in the South today? This question is pertinent and in its answer is the certitude that syphilis and yaws are caused by identical viruses. For if the cause of framboesia is distinct it should certainly breed true whatever the climatic conditions or whatever the race that harbors it. We have seen from the researches of Ashburn and Craig and of Castellani quoted above that it is easy to carry along the framboesial virus in monkeys, and researches since theirs have shown that it is much easier to carry yaws virus by testicular inoculation in rabbits. It goes without saying that yaws virus was repeatedly introduced into the South during the 300 years of traffic in African

slaves. Why did it not persist as a granuloma producing virus? Before answering this we will briefly outline some aspects of African slavery.

It began for the New World in 1517, when Bartholomé de las Casas (1474–1566), afterwards Bishop of Chiapa (1544) intervened at the Court of Spain on behalf of the oppressed Indians of Hispañola. He advised Charles V to permit each Spanish resident of the New World Colonies to import twelve African slaves. This first legalized slavery in America, but a few African slaves had been imported into Hispañola as early as 1502. The Portuguese first began to explore the West Coast of Africa in 1442. This was 55 years before Vasco da Gama rounded the Cape of Good Hope (Nov. 1497), and 50 years before the 1st voyage of Columbus. Because of these West African discoveries the Portuguese made agreements with other contemporary governments which gave them control of the slave trade from West Africa for many years. During the 300 years following 1520, millions of slaves were imported into the colonies of the new world from Africa. The first importation into Virginia occurred in 1619 and, at the end of the Civil War, by importation and multiplication the number of slaves in the Southern United States was approximately 4,000,000.

The traffic in African slaves was a brutal business. Transfer across the Atlantic was indescribably unsanitary. Wyndham B. Blanton, "Medicine in Virginia in the Eighteenth Century," quotes a British officer as having testified that a slaver could be smelt "five miles down wind."

An Appeal From The Judgments of Great Britain Respecting the United States of America. Part First, Containing An Historical Outline Of Their Merits and Wrongs As Colonies; And Strictures Upon the Calumnies Of The British Writers, By Robert Walsh, Jr. Quod quisque fecit, patitur: autorem scelus, Repetit, suoque premitur exemplo nocens.

Senec. Philadelphia: Published by Mitchell, Ames, And White. William Brown, Printer, 1819.

The English embarked in the slave trade in the year 1562. In that year they carried slaves to Hispaniola; and the first cargo was obtained with circumstances of abominable fraud.*

It proved lucrative, and immediately, associations were formed in England, among the most opulent and distinguished men of the country, to follow up the adventure. Soon, the object began to be considered as of national importance, and so early as the 16th of James I. a royal charter was granted to a number of eminent citizens of London, as a joint stock company, to carry on a trade to Africa, with an exclusive privilege. The private merchants, envious of the harvest which seemed to await the company, interloped upon the African coast, and so embarrassed the trade that the charter was abandoned. Another company was created by Charles I.; but it shared the same fate, from the same cause,—the cupidity and misconduct of the unlicensed adventurers. "On the accession of Charles II," says Davenant,† "a representation being soon made to him, that the British plantations in America were, by degrees, advancing to such a condition as necessarily required a greater yearly supply of servants and labourers than could well be spared from England, without the danger of depopulating his majesty's native dominions, his majesty did (upon account of supplying these plantations with negroes) publicly invite all his subjects to the subscription of a new joint stock, for recovering and carrying on the trade to Africa."

His majesty's subjects obeyed the call with alacrity; and some of the most imposing names of the kingdom appear at the head of the ample subscription list. But poachers swarmed again, and pleaded their natural right, and parliament found it expedient, in 1697, to lay open the trade for a term of years. The recrimination between the privileged and the interloping traders, unfolds abuses and enormities committed before the commencement of the 18th century, similar to those which were proved to parliament, when

* See the History of Hawkins's Voyage in Hackluyt's Collection, or in the 4th Book, c.ii of Edwards's History of the West Indies. Hawkins was afterwards knighted by Queen Elizabeth, and made Treasurer of the Navy. "The success which attended the first expedition to Guinea," said Edwards, "appears to have attracted notice and excited the avarice of the British government. We find Hawkins in the following year, appointed to the command of one of the Queen's ships, the *Jesus*, of 700 tons, and with the *Solomon*, the *Tiger*, and the *Swallow*, sent a second time on the same trading expedition. In regard to Hawkins, he was, I admit, a Murderer and a Robber. His avowed purpose in sailing to Guinea was to seize by stratagem, or force, and carry away the unsuspecting natives, in the *view of selling them as slaves, &c.*"

† Reflections on the African Trade, vol. v. of his works,

the question of abolition was agitated. It would be needless for me to detail the progress of the African trade to the highest consideration and favour with the government; the contest maintained with the commercial nations of the continent for the monopoly of that trade, and the successful advances made to this "consummation of wickedness." Factories were formed on the African coast; forts built, grants of money obtained from parliament,* and in the year 1792, twenty-six acts of that body, encouraging and sanctioning the trade, could be enumerated by its friends.

In the year 1689, England made a regular convention with Spain, for supplying the Spanish West Indies with negro slaves from the island of Jamaica. The twelfth article of the treaty of Utrecht (1713) "grants to her Britannic majesty and to the company of her subjects appointed for that purpose (the South Sea Company)—as well the subjects of Spain as all other being excluded—the contract for introducing negroes into several parts of the dominions of his Catholic majesty in America (commonly called El pacto de el assento de negros) at the rate of 4,800 negroes yearly, for the space of thirty years successively."

To this compact there have been two pointed references of late in the British parliament, which I will repeat here in further explanation of its character. "By the treaty of Utrecht," said Mr. Brougham (16th June, 1812) "which the execrations of ages have left inadequately censured, Great Britain was content to obtain, as the whole price of Ramillies and Blenheim, an additional share of the accursed slave trade."

Mr. C. Grant, jun. said (Feb. 9th, 1818) "that in the beginning of the last century, we deemed it a great advantage to obtain by the Assiento contract, the right of supplying with slaves the possessions of that very power which we were now paying for abolishing the trade. During the negociations which preceded the treaty of Aix-la-Chapelle, we higgled for four years longer of this exclusive trade; and in the treaty of Madrid, we clung to the last remains of the Assiento contract."

By degrees the English merchants engrossed permanently two-thirds of the whole African exportation, and became the carriers for the European world. They either supplied the French Islands directly, or served as the factors of the French trader on the coast of Africa. They occasionally freighted their ships to France, to be manned and equipped in the French ports. They stocked Trinidad, and the province of Caraccas, by contract with the Spanish Government; and, in the years 1786 and 1788, the Havannah. The

* From 1739 to 1744, it annually voted to the African company 10,000 sterling, to pay their debts; in 1744, the grant was doubled by reason of the war with France and Spain.

Philippine Company of Spain, when invested with the privilege of importing slaves into South America, employed, by contract, British vessels, manned by British seamen. The re-exportation from the British West Indies, for double profit, was so far encouraged, that by the West India free port act of 1766, foreign vessels were allowed to carry from the free ports negroes imported in British ships. England established a higher reputation than any other power for skill in the management of the trade, and in the choice and preparation of the articles of barter. Among her chief exports to Africa were British spirits, rum and brandy, guns, cutlasses, and ammunition. Of three millions of pounds of gunpowder, which she exported in one year, one half was sent to the West Coast alone; and, as I have already had occasion to remark, several thousand persons were exclusively employed in Birmingham, in manufacturing guns for that market. In a Report of the Board of Trade dated 1775, stress is laid upon the necessity of encouraging the trade of fire-arms in Africa.

England employed from one hundred and fifty to two hundred ships in the slave trade, and carried off, on the average forty thousand negroes annually; at times one half more, in the year. In 1768, the number which she took from the coast between Cape Blanco and the Rio Congo, reached 59,400, more than double the share that fell to all the other traders. Mr. Pitt said, in 1792, that Jamaica had imported one hundred and fifty thousand negroes in the course of twenty years, and that this was admitted to be only one-tenth of the traffic. Mr. Dundas said, on the same occasion, that, "in 1791, the whole British importation consisted of 74,000, not less than 34,000 of which were exported for the service of foreign nations."

The Parliamentary Report of 1789, on the slave trade, states, that the whole number of negroes brought to Jamaica from the year 1658 to 1787, amounted to 676,276, of whom 31,181 died in the harbour, from the noxious quality of the drugs employed in making them up for sale. The Edinburgh Review made the following statements in the years 1805 and 1806.

"Before the American war, the Dutch used to carry, in their own bottoms, from Africa to Guiana, ten thousand negroes annually; and it is proved, by papers laid before parliament, but which, we believe, have not yet been printed, that this importation was greatly increased during the last war, when those possessions were in the hands of Great Britain. It is certainly not over-rating its present amount, to estimate the yearly supply of negroes carried to our conquered colonies at fifteen thousand—about one half the supply of our own islands, which is the subject of the abolition question."*

* No. 13.

"The 38,000 slaves exported annually from Africa in British vessels, are only in a small proportion destined for the use of the colonies; above 22,000 are stated by the friends of the trade to be intended for the foreign settlements. To this must be added a large number of slaves carried by British vessels under cover of a neutral flag. From certain documents which we have had an opportunity of consulting, we cannot estimate these at less than 8000; and the supply of the conquered colonies considerably exceeds 10,000 annually."*

Authority is to be found for much higher estimates than these. I take the following from Anthony Benezet's Historical Account of the Slave Trade.

"In a book printed in Liverpool, called, the Liverpool Memorandum, which contains, amongst other things, an account of the trade of that port, there is an exact list of the vessels employed in the Guinea trade and of the number of slaves imported in each vessel; by which it appears, that in the year 1753, the number imported to America by one hundred and one vessels belonging to that port, amounted to upwards of thirty thousand, and from the number of vessels employed by the African Company, in London and Bristol, we may, with some degree of certainty, conclude, there are one hundred thousand negroes purchased and brought on board our ships yearly from the coast of Africa. This is confirmed in Anderson's History of Trade and Commerce, lately printed; where it is said, "that England supplies her American colonies with negro slaves, amounting in number to above one hundred thousand every year." When the vessels are full freighted with slaves, they sail for our plantations in America, and may be two or three months in the voyage, during which time, from the filth and stench that is among them, distempers frequently break out, which carry off commonly a fifth, a fourth, yea sometimes a third or more of them: so that taking all the slaves together, that are brought on board our ships yearly, one may reasonably suppose that at least ten thousand of them die on the voyage. And in a printed account of the state of the negroes, in our plantations, it is supposed that a fourth part more or less die at the different islands, in what is called the seasoning. Hence it may be presumed, that at a moderate computation of slaves who are purchased by our African merchants in a year, near thirty thousand die upon the voyage and in the seasoning. Add to this, the prodigious number who are killed in the incursions and intestine wars, by which negroes procure the number of slaves wanted to load the vessels."

* No. 16.

The Edinburgh Review has declared that England is the nation which "had most extensively pursued and most solemnly authorized the slave trade;" that she had been "principally instrumental in barring out from benighted Africa the blessings of christianity and the comforts of civilization," that it is she who had "checked or rather blasted in its bud the improvement of the African continent." The same strain is familiar in the speeches of Fox and Wilberforce. The latter reminded his countrymen, in 1814, in parliament, that they had enjoyed the largest share of the guilty profits of the slave trade. Mr. Pitt declared in 1792, that parliament ought to consider themselves as the authors of it. His more emphatical language of the year preceding is recorded by Clarkson—"The truth is, there is no nation in Europe which has plunged so deeply into this guilt as Britain. We stopped the natural progress of civilization in Africa. We cut her off from the opportunity of improvement. We kept her down in a state of darkness, bondage, ignorance, and bloodshed. We have there subverted the whole order of nature; we have aggravated every natural barbarity, and furnished to every man motives for committing under the name of trade, acts of perpetual hostility and perfidy against his neighbour. Thus had the perversion of British commerce carried misery instead of happiness to one whole quarter of the globe. False to the very principles of trade, unmindful of our duty, what almost irreparable mischief had we done to that continent! We had obtained as yet only so much knowledge of its productions as to show, that there was capacity for trade, which we checked."

That capacity was, indeed, checked, not incidentally alone, but directly; for, in order to obviate all obstruction to the slave trade, pains were taken to prevent the Africans from cultivating with success, the staples of their soil,—cotton, tobacco, sugar, and indigo. In this point, the English were, as in all others, preeminently culpable, since the number of forts which they possessed along the coast, with districts round each of them, afforded them better means, than any other European nation possessed, of giving the natives a taste for agriculture and the true objects of commerce.

7. The general character of the British slave trade has been so pourtrayed by the highest and ablest men of the British nation, that in describing it, I am supplied, in their language, with the strongest which I could wish to employ. The sufficiency of the following testimony will hardly be questioned. In the Debate on the Abolition in the year 1792, Mr. Wilberforce said, "that of all the trades that disgraced human beings, this was the very

worst. In others, however, infamous, there were traits of something like humanity, but in this there was a total absence of them. It was a scene of uniform, unadulterated, unsophisticated wickedness; never was there a system so big with wickedness and cruelty." In the same debate, Mr. Beaufoy said—

"Who does not recollect, that, by the evidence which the slave merchants themselves have given at your bar, it appears, that such, on board an African vessel, is the rate of mortality, that if the march of death were the same in the world at large, the whole human race would be extinquished in fourteen years, and the earth itself be converted into one vast charnel house. Show me a crime of any sort, and in the slave trade I will show you that crime in a state of tenfold aggravation. Give me an instance of guilt atrocious and abhorred, and the slave trade will exhibit instances of that guilt, more inveterate, more strongly rooted in all, diffusing a more malignant poison, and spreading a deeper horror. All other injustice, all other modes of desolating nature, of blasting the happiness of man, and defeating the purposes of God, lose, in comparison with this, their very name and character of evil. Their taint is too mild to disgust their deformity is too slight to offend. The shrieks of solitary murder; what are they, when compared with the sounds of horror that daily and nightly ascend from the hatchway of the slave ship! I have heard of the cruelties of the Inquisitions of Portugal and Spain; but what is their scanty account of blood, when compared with that sweep of death, that boundless desolation which accompanies the negro traffic! Superstition has been called man's chief destroyer; but superstition herself is less obdurate, less persevering, less stedfast in her cruelty, than this cool, reflecting, deliberate, remorseless commerce."

In the debate of 1807, Sir Samuel Romilly said, "The cruelty and injustice of the slave trade had been established beyond a doubt. It had been shown to be carried on by rapine and robbery and murder; by fomenting and encouraging wars; by false accusations and imaginary crimes. The unhappy victims were torn away not only in the time of war, but of profound peace. They were then carried across the Atlantic in a manner too horrible to describe, and afterwards subjected to perpetual slavery."

Lord Henry Petty said, "The slave trade produced in Africa, fraud and violence, robbery, and murder. It gave birth to false accusations and a mockery of justice. It was the parent of every crime that could at once degrade and afflict the human race. After spreading vice and misery all over a continent, it doomed its unhappy victims to hardships and cruelties which were worse

than death. Cruelty begat cruelty; the system, wicked in its beginning, was equally so in its progress," &c.

The tone of the Edinburgh Reviewers has been in unison with that of the eloquent members of parliament. They have described the trade as "one long continuous crime involving every possible definition of evil; combining the wildest physical suffering with the most atrocious moral depravity;" as one "which condemned a whole quarter of the world to unceasing and ferocious warfare; which annually exterminated more than fell during the bloodiest campaigns of European hostility; which regularly transported every six months, in circumstances of unparalleled affliction, more innocent persons than suffer in a century from the oppression of all the tyrannies in the world." In the 24th number of the Review, a picture was presented so hideous and so faithful, that the recollection of it would seem sufficient to have stayed any hand from hazarding, in the same frame, a comparison between the humanity of England and that of any other nation, in reference to the sons of Africa.

"The history of the slave trade is the history of a war of more than two centuries, waged by men against human nature; a war too, carried on, not by ignorance and barbarism against knowledge and civilization; not by half famished multitudes against a race blessed with all the arts of life, and softened and effeminated by luxury; but, as some strange nondescript in iniquity, waged by unprovoked strength against uninjuring helplessness, and with all the powers which long periods of security and equal law had enabled the assailants to develop,—in order to make barbarism more barbarous, and to add to the want of political freedom the most dreadful and debasing personal suffering. Thus all the effects and influences of freedom were employed to enslave; the gifts of knowledge to prevent the possibility of illumination; and powers, which could not have existed but in consequence of morality and religion, to perpetuate the sensual vices, and to ward off the emancipating blow of Christianity; and, as if this were not enough, positive laws were added by the best and freest nation of christendom, and powers entrusted to the basest part of its population, for purposes which would almost necessarily make the best men become the worst."

8. However strong these general representations, they are more than confirmed, by the details of which the world had the fullest proof. It was remarked with great truth by Mr. William Smith in the debate of 1792, in the House of Commons, that numberless facts had been related by eye witnesses, to parliament, so dreadfully atrocious, that the very magnitude of the crimes rendered

them incredible to others. I will select some of the particular features in the character of the trade, and a few of the single incidents, as they were related in parliament, upon such evidence as no longer to admit of contradiction. Mr. Wilberforce said, "it was well known that it was customary to set fire to whole villages in Africa, for the purpose of throwing the inhabitants into confusion, and taking them as they fled from the flames. Every possible fraud was put in practice to deceive the ignorance of the natives, by false weights and measures, adulterated commodities, and other impositions of the sort."

"On the windward coast an agent was sent to establish a settlement in the interior country, and to send down to the ships such slaves as might be able to obtain; the orders he received from his captain were a very model of conciseness and perspicuity; 'he was to encourage the chieftains, by brandy and gunpowder, to go to war, and make slaves.' He punctually performed his part, the chieftians were not backward on theirs; the neighboring villages were ransacked, being surrounded and set on fire in the night; their inhabitants were seized when making their escape, and being brought to the agent, were by him forwarded, men, women and children, to his principal on the coast. Mr. How, a botanist, who, in the service of government, visited that country with captain Thomson, gave in evidence, that being at one of the subordinate setttlements on the Gold Coast, on the arrival of an order for slaves from Cape Coast Castle, the native chief immediately sent forth his armed parties who, in the night, brought in a supply of all descriptions, and the necessary assortment was next day sent off, according to the order. The wide extent of the African coast furnished but one uniform detail of similar instances of barbarity.

"The exciting of wars," added the same speaker, "between neighboring states, is almost the slightest of the evils Africa is doomed to suffer from this trade. Still more intolerable are those acts of outrage which we are continually stimulating the kings to commit on their own subjects. A chieftian, to procure the articles for the gratification of appetites which we have diligently and too successfully taught them to indulge, being too weak or too timid to attack his neighbors, sends a party of soldiers by night to one of his own defenceless villages; they set fire to it, and hurry the inhabitants to the ships of the traders, who, hovering like vultures over these scenes of carnage, are ever ready for their prey. We are perpetually told of villages half consumed, and bearing every mark of recent destruction. Withersoever a man goes, be it to the watering place or to the field, he is not safe. He can never quit his house without fear of being carried off by fraud or by force. When the chieftians are going up the country

to make war in order to procure slaves, they are supplied with muskets and cutlasses by the traders."

Mr. Pitt said on the same occasion—"Can we hesitate in deciding whether the wars in Africa are their wars or ours. It was our arms in the river Cameroon put into the hands of the negro trader, that furnished him with the means of pushing his trade, and I have no more doubt they are British arms put into the hands of Africans, which promote universal war and desolation, than I can doubt of their having done so, in that individual instance."

Mr. Wilberforce related that in the year 1789, in the neighborhood of the river Cameroon, the master of a Liverpool ship of the name of Bibby, fraudulently carried off thirty-two relations of one of the chiefs of the country, who had been put on board as pledges for goods: and to illustrate the familiarity of the practice, he quoted the following anecdote. "When General Rooke commanded in his majesty's settlement at Goree, some of the subjects of a neighbouring king, with whom he was on terms of amity, came to pay him a friendly visit; there were from 100 to 150 of them, men, women, and children; all was gaiety and merriment, it was a scene to gladden the saddest, and to soften the hardest heart; but a slave captain, ever faithful to the interest of his employers, is not so soon thrown off his guard; with what astonishment would the House hear, that in the midst of this festivity, it was proposed to general Rooke to seize the whole of this unsuspecting multitude, hurry them on board the ships, and carry them off to the West Indies. It was not merely one man, but three, who were bold enough to venture on such a proposal. Three English slave captains preferred it as their joint request, alleging the precedent of a former governor, who in a similar case, had consented!" &c.

One more of the numberless authenticated occurrences of this nature, will suffice. "Mr. Wilberforce said that these enormities were increasing; for, no longer ago than last August (1791) when that House was debating on the subject of this very trade, six British vessels had anchored off the town of Calabar, in Africa, a town which seemed devoted to misfortune. It appeared, from the report, that natives had raised the price of slaves. The captains consulting together, agreed to fire on the town, to compel them to lower the price of their countrymen. To heighten, if possible, the shame of this proceeding, they were prevented for some time, from effecting their purpose, by the presence of a French captain, who refused to join in their measures, and purchased at the high price which had been put upon the slaves."

"However, in the morning they comenced a fire which lasted for three hours. During the consternation, the wretched inhabitants were seen making their escape in every direction. In the

evening, the attack was renewed, which continued until they agreed to sell their slaves at the price stipulated by the captains. In this attack upwards of twenty persons were destroyed."

The situation of the slaves on board ship, or what is commonly called *the middle passage,* even surpassed in horror the depravity and cruelty exhibited in the original asquisition. Lord Grenville declared in 1806, in the House of Lords, "that in the transportation of the negroes, there was a greater portion of misery condensed within a smaller space, than had ever existed in the known world. This he had said on a former occasion, and would repeat." Mr. Fox observed, in the House of Commons, that "the acts of barbarity, proved upon the slave captains in the course of the voyages, were so extravagant that they had been attributed to insanity." The single instance of the British ship Zong, in 1781, from which the captain threw into the sea one hundred and thirty-two slaves, alive, in order to defraud the underwriters in England, gives a truly demoniac character to the temper and conduct of the commanders of the slave ships. The assertion of Lord Grenville, just quoted, would seem to be warranted by the facts which were in undeniable evidence before the committees of Parliament. With respect to the middle passage—apart from the administration of the ship's officers, still more barbarous than the situation was deplorable,—the principle features of it are these, according to the testimony of witnesses produced on the side of the trade.

Every slave, whatever his size might be, had only five feet six inches in length, and sixteen inches in breadth, to lie in. The floor was covered with bodies stowed or packed according to this allowance. But between the floor and the deck or ceiling were platforms, or broad shelves, in the midway, which were covered with bodies also. The height from the floor to the ceiling, within which space the bodies on the floor and those on the platforms lay, seldom exceeded five feet two inches, and in some cases it did not exceed four feet.

The men were chained, two and two together, by their hands and feet, and were chained also by means of ring-bolts, which were fastened to the deck. They were confined in this manner at least all the time they remained upon the coast, which was from six weeks to six months, as it might happen. Their allowance consisted of one pint of water a day to each person, and they were fed twice a day with yams and horsebeans. Instruments were kept on board to force them to eat, when sulky.

After meals, they jumped up in their irons for exercise. This was so necessary for their health that they were whipped if they refused to do it, and often danced thus under the lash. They were usually fifteen or sixteen hours below deck out of twenty-

four. In rainy weather they could not be brought up for two or three days together. If the ship was full, their situation was then inexpressibly distressing. They drew their breath with anxious and laborious efforts. Thus crammed together, some died of suffocation, and the filth and noisomeness occasioned putrid and fatal disorders; so that the officers who inspected them in a morning, had occasionally to pick dead slaves out of their rows, and to unchain their carcases from the bodies of their fellow-sufferers, to whom they were fastened.

The scenes and practices in the next stage of the sacrifice, —the sale in the West India port,—rivalled those of the transportation. The slaves who survived the passage, frequently arrived in a sickly and disordered state, and then they were made up for the market, by the means of astringents, washes, mercurial ointments, and repelling drugs, so that their wounds and diseases might be hid. Many people in the islands, in Jamaica particularly, were accustomed to speculate in the purchase of those who were left after the first day's sale. They then carried them out into the country, and retailed them there. A most respectable witness declared that he had seen these landed in a very wretched state, sometimes in the agonies of death, and sold as low as a dollar, and that he had known several to expire in the piazzas of the vendue-master.

9. In the list of the evils and atrocities accompanying this trade, one of the most certain and shocking, was the extensive mortality, independent of that inseparable from the wars and devastations in Africa, to which it gave rise. We read in Macpherson's Annals, that the whole number of negroes delivered, fell short of the number shipped, twenty or thirty per cent; that in Jamaica, if fifteen out of twenty new negroes bought, were alive at the end of three years, the purchaser was thought very lucky. We are told by the Edinburgh Review (No. 8) that upon an average no less than seventeen in an hundred died before they were landed, and that there was a further loss of thirty-three in the seasoning, arising chiefly from diseases contratced during the voyage. "Of the Africans," says Dr. Dickson, in his Mitigation of Slavery, "above one-fourth perished on the voyage to the West Indies; and 4½ per cent. more, being nearly the annual mortality of London, died on an average, in the fortnight intervening between the day of entry and sale. To close this awful triumph of the king of terrors, between one-third and one-half, or about two in five were lost in "the seasoning," within the three first years." The representations of Mr. Wilberforce on this head were never invalidated, and are as follows. "It would be found," he said, "upon an average of all the ships, upon which evidence had been given, that, exclusively of such as perished before they sailed

from Africa, not less than twelve and a half per cent. died on their passage; besides these, the Jamaica report stated, that four and a half per cent. died while in the harbours, or on shore, before the day of sale, which was only about the space of twelve or fourteen days after their arrival there, and one-third more died in the seasoning, and this in a climate exactly similar to their own, in which they were acknowledged to be healthy. Thus out of every lot of one hundred shipped from Africa, seventeen died in about nine weeks, and not more than fifty lived to become effective labourers in our islands."

Mr. Wilberforce adduced, on another occasion, upon the authority of indisputable evidence, some cases of particular mortality, of which I will transcribe his relation, because it brings into view additional attributes of the trade.

"It was no longer ago than in the year 1788, that Mr. Isaac Wilson, whose intelligent and candid manner of giving his evidence could not but impress the committee with a high opinion of him, was doomed to witness scenes as deeply distressing as almost ever occurred in the annals of the slave trade.

His ship was a vessel of three hundred and seventy tons, and she had on board six hundred and two slaves, a number greater than we at present allow, but rather less, I think, than what was asserted by the slave merchants to be necessary, in order to carry on their trade to any tolerable profit. Out of these six hundred and two she lost one hundred and fifty-five. I will mention the mortality also of three or four more vessels, which were in company with her and belonged to the same owner. One of them brought four hundred and fifty, and buried two hundred; another brought four hundred and sixty-six, and buried seventy-three; another brought five hundred and forty-six, and buried one hundred and eighty-eight: besides one hundred and fifty-five from his own ship, his number being six hundred and two; and from the whole four, after the landing of their cargoes, there died two hundred and twenty. He fell in with another vessel, which lost three hundred and sixty-two; the number she had brought was not specified. To these actual deaths, during and immediately after the voyage, and the subsequent loss in what is called the seasoning, I consider that this loss would be greater than ordinary in cargoes landed in so sickly a state. Why, sir, were such a mortality general, it would, in a few months, depopulate the earth. We asked *the surgeon the causes of these excessive losses, particularly on board his own ship, where he had it in his power to ascertain them.* [Italics of C. S. B.] The substance of his reply was, that most of the slaves appeared to *labour under a fixed dejection and melancholy, interrupted now and then by lamentations and plaintive songs, expressive of their concern for the loss of their relations*

and friends and native country. [Italics of C. S. B.] So powerfully did this operate, that many attempted various ways of destroying themselves; some endeavoured to drown themselves, and three actually effected it; others obstinately refused to take sustenance, and when the whip and other violent means were used to compel them to eat, they looked up in the face of the officer, who unwillingly executed this painful task, and said, in their own language, 'Presently we shall be no more.' Their state of mind produced a general state of languor and debility, which were increased, in many instances, by an unconquerable abstinence from food, arising partly from sickness, partly, to use the language of slave captains, from 'sulkiness.' These causes naturally produced the *dysentery* [Italics of C. S. B.]; the contagion spread, numbers were daily carried off, and the disorder, aided by so many powerful auxiliaries, resisted all the force of medicine.

"The ship in which Mr. Claxton, the surgeon, sailed, since the regulating act, afforded a repetition of all the same horried circumstances I have before alluded to. Suicide, various ways, was attempted and effected, and the same barbarous expedients were resorted to, in order to compel them to continue an existence too painful to be endured; the mortality also was as great."

10. Bryan Edwards, in his History of the West Indies,* computes the total import of negroes, in British vessels, into all the British colonies of America and the West Indies, from 1680 to 1786, at 2,130,000, being on an average of the whole, 20,095 annually. He acknowledges that this estimate "is much less than is commonly supposed," and that he had not "sufficient materials to enable him to furnish an accurate statement." There can be no doubt that he is far short of the real number. It is calculated, as we have seen, by Anderson, that the annual British export from Africa was one hundred thousand, and the annual mortality twenty thousand. Mr. Long confesses, in his History of Jamaica, that twenty-seven thousand were imported into that island in two years and an half; and Mr. Edwards puts down the Jamaica importation at one-third of the whole. The Dutch colonies of Demerara, Guiana, and Berbice, fell into the hands of Great Britain in 1797; and immediately called for a great number of negroes, having been prevented from supplying themselves during the war. It is averred in the Edinburgh Review (No. 24) that the British slave trade then rose to fifty-seven thousand, and continued at that standard for eight years; that is, until 1805, when the importation into the Dutch colonies was terminated by an order in council, to appease the jealousies and clamours in the old islands.

* B. IV. c. 2.

Taking the data which the statements quoted in the preceding pages afford, I should not certainly transcend the mark, if I added ten thousand to the average of Edwards. If we state it, in round numbers, at thirty thousand, we shall have, for the one hundred and six years, three millions one hundred and eighteen thousand negroes imported into the British possessions alone. But to have the whole number which Great Britain obtained from Africa, we must bring into the account those whom she procured antecedent to the year 1680, and after the year 1786; those whom she imported directly into the foreign possessions, under her contracts, and otherwise; and also, those who perished on her hands on the coast of Africa, and in the transportation. The aggregate of her immediate prey must have exceeded six millions and we may rate the direct mortality for which she is answerable, at two millions, for the century of the trade preceding the abolition.* If we call to mind, besides, the general physical suffering undergone by the survivors, before they reached their ultimate, most calamitous lot; the mental agony implied in their divulsion from their native soil and the bonds of kindred and friendship; we must stand aghast at the account of crime which remained open against the British nation at the time of the abolition. In addition to the items mentioned, those are of no small moment which are suggested in Mr. Pitt's apostrophe to the House of Commons. "Do you think nothing of the ruin and the miseries in which so many other individuals, still remaining in Africa, are involved, in consequence of carrying off so many myriads of people? Do you think nothing of their families which are left behind; of the connexions which are broken; of the friendships, attachments, and relationships that are burst asunder? Do you think nothing of the miseries, in consequence, that are felt from generation to generation, of the privation of that happiness which might be communicated to them by the introduction of civilization, and of mental and moral improvement?"

From the foregoing exposition, it may be asserted, with confidence, that the British slave trade caused immediately, during the two centuries of its legal prosecution, the destruction of more negroes than have existed, altogether, in North America, since

* This is much below the calculations of her own writers. "The number," says one of these, "of slaves which the ships profess to take is not an exact criterion of the number actually taken. The public number does not include the quota, allowed to the respective officers of the ship; nor do the owners confine themselves to any exact number, if, on the arrival of the ship in Africa, the commodity is cheaper than they expected." For obvious reasons, the mortality of the negroes in the transportation would not be disclosed in all its extent. The number smuggled by the British into the Spanish possessions, while they enjoyed the assiento, was not inconsiderable.

the first settlement. The leaders of the abolition, the Pitts, the Foxes, the Horsleys, did not hesitate to bestow upon that destruction the most fearful of epithets.

"What is it," exclaimed Lord Grenville, "but murder to pursue a practice which produced annually untimely death to thousands of innocent and helpless beings!" Now, I would ask, which it is, the Briton or the American, that can, with most propriety, be stigmatized, nationally, as "a murderer of slaves?"

If we admitted as true all that the British writers have related of the condition and treatment of the slaves in this country, we could yet defy them to make out an amount of injustice, and suffering, and cruelty, in any way equal to that which they have charged and proved upon their African trade. In portentous individual instances of inhuman conduct, whether as to enormity or multitude, that trade for outstrips the North American negro slavery; the history of which presents, indeed, no authenticated case of barbarity which does not appear almost venial, in the comparison with the monstrous proceedings consigned in the parliamentary minutes of evidence.

We have given this account of the development and administration of the slave trade, not to point a finger of accusation at Great Britain, for she was without doubt one of the most enlightened and civilized nations of the earth, at the period in question. My purpose is to give to readers of this volume, and more particularly to medical readers the feel of the vast medical and epidemiological problems involved in uprooting millions of highly diseased people from their natural surroundings and "inoculating" vast areas of a virgin world with new and strange diseases. In addition to the intermingling of cosmopolitan infections of all sorts, the New World most probably received, from the African slave trade, the following major infections:

1. Yellow fever.
2. Tropical malaria.
3. Hookworm disease.
4. Schistosomiasis of Manson.
5. Filariasis (elephantiasis arabum).

6. Leprosy (elephantiasis graecorum).
7. Onchocerciasis, and other minor diseases.

In order to show the importance of the slave trade to one small section of the West Indies, viz., The Republic of Haiti, Island of Hispañola, I quote a few paragraphs of a paper published in the U. S. Naval Medical Bulletin, Vol. XXIV, No. 2 (April), 1926, pp. 269 and 270.

In order to understand the Republic's present-day problems in medicine it will be necessary to recall a few facts in history. There are those who think that Christopher Columbus made a horrible mistake when he discovered Haiti, because, since that memorable 6th of December, 1492, when he came ashore at Môle St. Nicolas, Haiti and her peoples have undergone much suffering and endured many injustices at the hands of the magnanimous whites. Gold getting or commercial advancement have activated most of the white men's altruism. So it is little wonder that, after the islands 400 and more years of intensive exploitation, the present-day Haitian when threatened with more altruism should immediately look for the "blanc in the woodpile." We white people killed off most of the Indians so that within 60 years after the discovery they were, for all practical purposes, exterminated. As early as 1512, seeing that the poor Caribs could no longer serve our greed effectively, we whites began to substitute African slaves. Each European colonist was allowed 12[1] of these and the traffic increased to such an extent that by 1790 there were 509,642 of them in the French colony alone. These slaves had been brought from every section of equatorial Africa and at the time Haiti gained her independence they outnumbered the whites by upwards of 16 to 1.

Moreau de Saint-Méry[2] in his remarkable account of the slaves, their characteristics, and the sources whence they were drawn, lists African towns and cities all the way from the mouth of the Senegal

[1] The Encyclopaedia Britannica, 11th Ed. 25: 222.

[2] Moreau de Saint Meŕy (M. L. E.): Description topographique, physique, civile, politique et historique de la Partie Francaise de Saint Domingue. Avec des observations générales sur la population sur le caractère et les moeurs de ses divers habitants; sur son climat, sa culture, ses productions, son administration, etc. Accompagnées des détails les plus propres à faire connaitre l'état de cette Colonie à l'epoque du 18 Octobre, 1789. (2 vols., Philadelphia, 1797.) (Topographical, physical, civil, political, and historical description of the French part of Santo Domingo. With some general observations upon the population, the character and customs of its divers peoples; upon its climate, culture, products, administration, etc. Accompanied by appropriate details to show the condition of this colony up to the 18th of October, 1789.)

PLATE 9. Two African boys in the beginning sleeping stage of African trypanosomiasis. During the slave trade, many such cases came into the new world. Before this stage comes on, the Winterbottom sign is of diagnostic importance. Sleeping sickness never got a hold in the new world because of the fact that it requires the tsetse fly as a vector. All species of this fly of the genus Glossina are African. Kindness of E. R. Kellersberger, M.D.

at 17° north latitude on the West African coast clear around the Cape of Good Hope and up to Mozambique at 10° south latitude on the east coast. Madagascar also furnished slaves to the West Indies. Not alone the coast line, but the interior of the continent also furnished them. To us who are familiar with the deadly diseases which are found in this immense area of Africa, the wonder is that the West Indies and the two Americas came out of the slave trade as well as they did in the matter of disease importations.

It is reasonable to think that during 292 years of slave trade between 1512 and 1804 every type of disease that the Continent of Africa might boast of had been brought to Haiti. It is sound medicine also to reason that all African diseases except those requiring vectors not present in Haiti have prospered here. This statement also applies to African types of religious worship (Voodooism). In 1804, accordingly, the Nosology of Haiti, had there been such, would have included all of the diseases that 312 years of European intercourse could contribute, together with what Africa could add during 292 years of the slave trade. These two are, of course, to be supplemented by such strictly American contributions as the Caribs could make before they were exterminated.

Recalling the fact that the Portuguese had exploited the slave trade on the West Coast of Africa since 1442 or some 50 years before the discovery of America, and that N. E. Africa, Ethiopia, had been slave territory for Europe since long before the Christian Era, it requires no medical learning to know that African and European diseases of all types had been subjected to the melting pot for centuries before America was discovered.

Now combine this with what you have read above about the rum and racketeer administration of the slave trade for 300 years, and I believe you will not quibble about where treponematosis originated.

Yet there was some supervision in a medical way both at slave concentration points in Africa and after arrival in America. Certain signs and tests were used to discover bad risks among the slaves. If a slave developed African sleeping sickness after importation, he was a total loss. The Winterbottom sign helped to exclude bad risks from this source. This is a

polyadenitis and the glands are examined in the post-cervical triangle, where we also look for the syphilitic polyadenitis, but in trypanosomiasis (sleeping sickness) the glands are discreet, soft and painless, not hard and shotty as in syphilis. A healthy negro slave would bring $600.00 in Charleston, or New Orleans. They were stripped and medically examined before purchase by a planter. If a negro had evident signs of syphilis, yaws, sleeping sickness or other debilitating disease, he would not be sold for the standard price. Blanton says there were doctors who purchased diseased slaves for low prices, then tried to cure them of their diseases in order to sell them at standard rates. He also states that some of the negroes suffered from "Cachexes or yaws, which is a violent scurvy."

We know from the testimony of Dr. Brickell, Wm. Byrd, and many others that yaws was frequent in colonial America. They considered it the same thing as the French Pox. Now the plantation negro we know from Blanton and others was well cared for medically. The land owner took better care of his negroes than he did of his own family. They were his capital, his stock in trade. Does it sound like good medicine to find a contagious, infectious and potentially venereal disease disappearing from a population as filthy normally and as venereally minded as the negro? Especially if this disease is chronic in course and constitutional in its manifestations? No, it is utterly unorthodox and unthinkable medically. If yaws were a distinct disease, it would so manifest itself in the southern negro today. The treatment he got from his white owner, his change from the African G-string to civilized clothing and habits have converted his highly infected yaws lesions into civilized man's type of treponematosis, which is syphilis. We may not account for the present-day absence of typical fungating yaws in southern negroes in any other

way. If we try to answer the question on the basis of duality of viruses, the question at once arises, where is there a parallel in all human epidemiology of a disease which is contagious, infectious, venereal and constitutional disappearing from a people when there was still infectable human material at hand? The question is unanswerable on the basis of dualtiy; it is extremely simple when based on unity.

Those opposed to unity object to this interpretation because they say yaws is in the majority of cases a disease of childhood, while syphilis is a venereal disease of adults. To disprove this statement, one need only refer to a paper by Drs. A. L. Gray and W. H. Cleveland, entitled "Sources and Modes of Infection in Two Family Outbreaks of Syphilis," published in The American Journal of Public Health, Vol. 25, No. 1, January 1935, pp. 49–53. This is one of the few papers which accurately traces down the source of infection of the several members of a family. Briefly stated, a young man gave venereal syphilis to the 17 year old daughter of the family. This daughter gave innocent syphilis to three of her brothers and sisters, aged 8, 4 and 2 years, respectively. The two year old boy was still nursing and with a chancre on his lip, he infected the mother of all of them, the chancre occurring upon her nipple. In turn, the mother infected the father with an innocent but venereal syphilis, the chancre in his case being penile in location. Thus, one adult man was the cause of infection of three other adults and three children, the oldest of whom was only 8 years. This was a white family. Negro families are much filthier and yet they like their infants and "mouthe" them constantly. When we come to a description of the terrible conditions which prevail among tropical natives as to family and personal hygiene, it will at once become apparent why yaws is a disease of childhood.

CHAPTER IV

YAWS, FRAMBOESIA, TREPONEMATOSIS PRESENT STATUS—1936[1]

"Better to hunt in fields for health unbought,
Than fee the doctor for a nauseous draught,
The wise for cure on exercise depend;
God never made his work for man to mend."

Dryden—Epistle to John Dryden of Chesterton.

It is unfortunate that two such different-sounding terms as yaws and syphilis should be used to designate disease conditions so nearly allied, if indeed, not etiologically identical. Teaching medical students about yaws and giving this an exotic tang by classifying the syndrome as strictly tropical is responsible for the artificial and unsatisfactory status of this whole question. "Framboesia" has exotic implications and hence is also unsatisfactory. In 1925, while working in Haiti, where hundreds of cases of so-called yaws were under treatment, and investigation by scores of medical men each having his own ideas as to unity or duality, and wishing to avoid any schism which might produce less than the greatest good in the premises, we adopted the term "treponematosis" to cover all forms of infection with treponemata. In a clinic like the one pictured herewith, it was manifestly impossible for a medical officer to pick out the cases showing "fungating" lesions and call them yaws, and label the other types of eruption and the mass of "latents" showing positive Wassermann reactions, syphilis. Treponematosis is the best designation, and if we wish to qualify, we may use the adjectives framboesial and syphilitic. The suffix "osis" is better than "iasis" (treponemiasis) since this latter suffix is usu-

[1] See "Yaws on the Island of Guam," Military Surgeon, v. 78, no. 3, March 1936.

ally applied to animal parasitic diseases, as for example, filariasis, schistosomiasis, ancylostomiasis, &c.

The population of the Island of Guam, in its medical history, gives conclusive proof that yaws and syphilis are identical etiologically. A brief history of Guam, where yaws has been so prevalent, will therefore be a good starting point from which to enumerate the peculiarities of this syndrome. Guam was discovered by Ferdinand Magellan on the first voyage of circumnavigation of the globe in 1521. He named the group of islands "Ladrones" because the inhabitants were such inordinate thieves. Later, about 1668, this group of fifteen islands was colonized by Spain and named the Marianna Group. The total area of the fifteen islands is only 420 square miles. The largest of these, Guam, is 200 square miles in area or about twice the area of the District of Columbia. Guam is situated at about the 12th degree of north latitude and 145th Meridian of East Longitude. It is 1,500 miles East of Manila and 5,053 miles Southwest of San Francisco. The native population in 1898, when the island was taken over by the United States, was between nine and ten thousand. In 1930, this was 17,500 and with its foreigners, the population is now about 18,500. The principal town is Agaña with a population of 8,500. In spite of its exquisite isolation, Guam has been visited by the riffraff of the Pacific for some 300 years. The population is a mixture of the native Chammoro stock, with Tagals from Luzon, and with more than a trace of Spanish and "Whaler" blood included.

From the year 1668, up to the time the United States took Guam over in 1898, there was rather constant, albeit rare, communication with Europe, Mexico and other countries of the world. It was for many years used as a place of call for whalers operating in the Pacific. During the century following

colonization by Spain, the population of Guam, reputed to have been about 100,000, was reduced by disease to approximately 1,800 souls. With such a background it goes without saying that during three hundred years of intercourse with the outside world, syphilis was repeatedly introduced into Guam. When the United States occupied the Island, as will appear later, the entire population was under the taint of this disease. Mathematically it could not have been otherwise for they had never been treated and in the cure of their pitiable state, nature had trodden the wine-press alone. We have fairly complete records from the year 1898 up to the present, and the Navy experience here constitutes, as far as yaws is concerned, a vast unplanned experiment, upon human beings. We will show that so-called yaws in Guam is, in reality, congenital syphilis, which having gone untreated for several centuries, has tainted the entire population. No other population in the world today has been given such unlimited opportunity to become syphilized, and yet has been so completely isolated from the rest of the world. Guam is furthermore particularly well adapted to such a study because of the fact that its principal town, Agaña, may be contrasted with a rural population now numbering about 10,000. This latter is not sufficiently under control of medical officers, at the present time, as to have each case that develops promptly treated as *is* the case with these in the town of Agaña. We may therefore contrast a town population, well cared for medically, with a large country population which, in some areas, is without medical supervision.

The first vital statistics available were for the year 1907. (Guam: Reports on Health and Sanitation for the Years 1907 and 1908: U. S. N. Medical Bulletin, Vol. 3, 1909, pp. 321 et seq.) The population was 11,361, and there were 10,998 natives. Increase

in population since 1900 was 32.08 per cent. There were 532 births, 274 male and 258 female; percentage of illegitimate 13.74; death rate per thousand 24.03. Four deaths were due to "gangosa" and two to premature birth. There were nine stillborn and one case of aneurism of the thoracic aorta. During that year 185 patients affected with gangosa were in detention. For the year 1908, the population is given as 12,034, natives, 11,636; increase in population since 1900, 2,404; births 551, male 274, female 277; native deaths 298; death rate per thousand 24.9; stillborn 14; gangosa caused one death. In 1908 a conservative estimate of the number of gangosa patients would be 250. It was also noted that this condition was on the decrease, and that Agaña, with almost three fourths of the population of the island, contributed only two of the nine *new* cases appearing during the past year.

The period from 1908 to 1934 will be described in the words of the late Captain John G. Ziegler (MC) U. S. Navy, who served twice on Guam, with a widely separated interval and made this summary in October, 1934.

In preoccupation days, yaws was prevalent and gangosa comparatively common. With the onset of the enforcement of sanitary laws and the application of hygienic habits of living, yaws has been forced more and more into the outlying districts. I have seen some of the most profuse eruptions of intricate circinate patterns in the secluded country districts.

Nature conspires with economic and domestic conditions in Guam unduly to increase the sexual activities of the inhabitants. This is particularly true of the outlying districts. At night the family seals itself, in toto, in the living room of about 9 x 12 feet and thinly dressed or not dressed at all, the members group themselves in a more or less compact mass in the center of the room. In a country from which there is no escape from an unvarying routine, where the greatest ambition is to eke out an existence between typhoons, where the struggle for existence is an unending war, with no quarter on either side, against innumerable worms

and vermin, not to mention tuberculosis; where the finish of every one is the postmortem table of the hospital morgue; where the women greatly outnumber the men; in such a place sexual intercourse is a compensation and the momentary ecstacy of the orgasm is their only reminiscence of that Eden which their island so sadly mimics. For such reasons *incest is far from rare.*

The natives never did look upon yaws seriously. For that reason few cases appear at the hospital, although in recent years due to check up by the outlying patrols, a good number are treated in the clinics. Regarded as a tertiary symptoms or manifestation of yaws, the almost complete disappearance of gangosa is logically explainable. Since in recent years cases of yaws are treated promptly and thoroughly by the arsenicals, rarely do they ever progress to the tertiary stage. The few sequelae compatible with syphilis, such as the periosteal and osteoid changes producing the "saber-deformity" of the tibia, and certain atheromatous changes in the aorta and "knobbing" or dilatation of the aortic arch (seldom progressing to real aneurism), not to mention ulceration of the naso-pharynx, are now, thanks to salvarsan, corrected to cicatrized deformities. Many exactly similar deformities have I seen among the old syphilitics in Blockley clinics in my student days.

In 1919 the annual sanitary report recorded 330 cases of gangosa of which three were new cases. In the same year, Captain Paul R. Stalnaker (MC) U. S. Navy, Ret., ventured the opinion that gangosa was due to hereditary syphilis. In 1920–21 forty-two cases of yaws were recorded, all in natives and the majority in children. In 1929, it was noted that it "was rare for a native woman to have *syphilis* or a white person to have yaws." One case of syphilis (or yaws) in a white sailor was admitted that year *with a history of exposure to a native woman.*

In 1929 Captain Frederick E. Porter (MC) U. S. Navy, noted that "yaws was prevalent, almost universal, and that it was usual to get a history of yaws in childhood, the presence of scars and a positive Kahn test in an otherwise healthy adult man. He cites a patient with tertiary yaws who presented a hemiphlegia and gave a positive Kahn test." In 1932 Captain John B. Mears (MC) U. S. Navy, reported 74 cases of yaws admitted, more frequent in children and young people. They were instructed to report monthly after treatment for examination. In 1933 Mears again reported that yaws was prevalent, that active cases yield readily to Salvarsan but require *prolonged treatment* before a negative Kahn test is obtained. He reported 486 cases treated in the clinics. In 1934, Captain Addison B. Clifford (MC) U. S.

Navy, reports yaws still active, 303 cases treated in the clinics, 45 in the hospital.[3]

How are we to reconcile what Captain Ziegler tells us in this brief review of 30 years' experience with yaws in Guam; how are we to reconcile it with the unity hypothesis? Jonathan Hutchinson gives us the answer in his article on constitutional syphilis (Reynolds' System of Medicine, Hartshorne, Vol. I, pp. 427 and 428; Henry C. Lea's Son and Co., Philadelphia, 1880). Because of its pertinency to the matter at hand we quote Hutchinson's words:

> Of yet wider importance is the question as to *the influence of disease in the parent in affording protection, partial, or complete to the offspring.* [Italics of C. S. B.] If we grant as we must the two postulates; first, that syphilis is transmissible to offspring, and second, that it is protective for a certain time against second contagion, then, we are obliged to admit that just as the disease itself may be transmitted, so may the immunity it affords. Here again we have very little clinical evidence on which to build, but what we do possess certainly favors the view that those who have suffered severely in infancy from inherited disease are to some extent protected. In the history of congenital syphilis, however, nothing is more common than to meet with cases in which the eldest child of a family suffered severely *in infancy,* the second child slightly, the third still more slightly, and the others not at all. I have at present several families under observation in which this has been the case, and in which all the children have lived and the intervals between them are but short. The younger members of such families often appear to be in robust health. Now if in such cases the oldest enjoys immunity, probably the second also does in some degree and so on through the whole, the degree of protection diminishing in ratio to the distance from the original taint. Do we not here touch upon a law of the utmost importance, not only in respect to syphilis, but to its congeners also? Is it not probable that a very considerable portion of the community, being descendants of those who have suffered, enjoy in a certain degree, infinitely slight in some but powerful in others, immunity from further attacks? The manner in which a slight degree of inherited immunity would become manifest would probably not be an entire escape from contagion, but in the production of a much milder

[3] Personal communication from Captain Ziegler.

form of the disease. This is what occurs in cases of smallpox after vaccination, or after a previous attack of the true disease, and indeed in second attacks of any of the specific fevers. It is surely impossible to believe that the constitution of a person who has passed through the stages of any of these diseases ever again returns into precisely the same condition in relation to the virus in question that it occupied before, and it is equally inconceivable but that some share of this peculiarity shall be transmitted to offspring. A child born to parents neither of whom are liable to smallpox or syphilis, as the case may be, must be in a different position, as regards those diseases, from the child of parents both of whom are liable. In like manner a half result ought to be expected where one parent is exempt and the other liable. Now, it is a matter of well-proven observation that any specific disease will be especially severe when imported into a country previously free from it. The ravages of smallpox in a virgin race are something far beyond what is ever known in a community long accustomed to the disease. There are also good reasons for believing that syphilis has become a milder disease during the last two centuries than it was when it first invaded Europe. This amelioration we may most easily explain by recourse to the hypothesis above suggested.

This subject will be found very ably treated in Mr. Lee's lectures on syphilis (Lecture XI, p. 209). Mr. Lee quotes the important observation of Dr. Ferguson (1812) as to the mildness of syphilis amongst the Portuguese being explained by the acquisition of hereditary immunity, and adds: "That which Dr. Ferguson observed in his day may be seen at present. A person who has had hereditary syphilis in his youth, will either not contract the *infecting form* [Italics of C. S. B.] of syphilis in after life, or will have it in a modified form.

Four years ago I published in the British Medical Journal some cases in which patients who had suffered from inherited syphilis subsequently contracted venereal sores. These cases were, I believe, the first facts relating to the subject which had been recorded. Others had arrived at the same conclusions, but it was by a priori reasoning rather than by deduction from facts.

Subsequently, I published a case in which a patient who was the subject of inherited taint not only contracted a venereal sore, but experienced an outbreak of constitutional symptoms. This young man is still under my care, and suffers from inherited syphilis and constitutional syphilis at the same time. I have recorded a number of facts bearing on this subject in the *second volume* of the London Hospital Reports.

As far as the Guam experience is concerned, Hutchinson was "laying the pattern over the target" at every point for in this treponematous stronghold, whenever the threshold of a child's immuno-tolerance from the inherited complaint falls below a certain level, the number of infective carriers is so great that the child immediately develops an acquired case of innocent syphilis with the primary lesion somewhere on the glabrous skin or at a mucocutaneous juncture. To complete the Guam picture, it is only necessary to amplify what Hutchinson depicts for European syphilis by a few words explaining the mechanism of immunity in this disease as we understand it today. Quoting in part from Stokes (Modern Clinical Syphilology, Second Edition, section on The Interaction of Organism and Host, p. 34 et seq.), a work written fifty-four years after Hutchinson's will accomplish this:

> Relapse therefore is distinctive of syphilis from the chancre to paresis. . . . *Immunity* in syphilis is now admitted by the majority of investigators but this is not an antitoxic immunity. . . . It is largely a cellular immunity and due to numerous foci of Treponema 'rests' throughout the infected body. . . . Just as it is conceivable that a given tissue may through extensive involvement and reaction develop a high degree of local immunity, so it is also conceivable that the local lesion, especially if it be extensive, may make important contribution to the general mechanism of defense, which to some extent protects distant tissues even though they may not up to that time in the life history of the individuals disease have been invaded by the *Treponema pallidum* itself.

The Hutchinsonian conception explains all the facts observed in the epidemiology of yaws on the Island of Guam:

1. Why a human being may show symptoms anywhere from one month to 84 years after birth—heredosyphilis.
2. How a child born healthy, but acquiring yaws innocently, may actually transmit the disease to its healthy mother.

3. Why genital chancres in adult natives are so rare as to be negligible: taint universal.

4. It explains too what medical officers have noted from the beginning, viz., the stigmata of congenital syphilis are universal in the people of Guam.

These stigmata are slightly different from those shown by syphilis when operating in a population accustomed to *treat* the condition generation by generation. In this connection, reference is made to a most important paper by Captain Henry E. Odell (MC) U. S. Navy, Ret., entitled: "Is Gangosa a Form of Syphilis?" (U. S. Naval Medical Bulletin, Vol. 5, 1911, p. 30, et seq.). Odell shows in this paper that the inhabitants of Guam not only show the stigmata of congenital syphilis but that these are slightly different from those of European syphilis. He also shows that 82 per cent of the 338 gangosas studied by him and his colleagues, H. A. Garrison and G. B. Crow, both Medical Corps, U. S. Navy, showed positive Wassermann reactions and all were cured by mercury, salvarsan and potassium iodide.

Commander Orville R. Goss (MC) U. S. Navy, an ophthalmologist, recently returned from Guam, in a personal interview indicated the prominent stigmata of congenital syphilis among the people of that island. With the exception of interstitial keratitis which is taken from Odell, all other plus marks are from Goss:

First blood Wassermann positive	+	+	+	+
Interstitial Keratitis (Odell)	+	+		
Bosses	+	+		
Sabre shins	+	+	+	
Saddle nose	+			
Mentally below par	+			
Facies	+			
Other nose lesions	+			
High palatine arch	+			
Liver enlarged	+			

Spleen enlarged	+	
Rhagades	+	
Gumma, nose, throat	+	+
Hydrarthrosis	+	
Periostitis	+	+
Dactylitis	+	

Neurosyphilis, Hutchinson's teeth and congenital deafness were not mentioned either by Goss or Odell.

The mutilating deformity called gangosa in Guam is as indicative of untreated and ancient syphilis as is aneurism of the great arteries. Nothing except syphilis gives this. On a preceding page we gave Jean Astruc's quaint description from the 1737 translation of his volumes, A Treatise of the Venereal Disease in Six Books, Vol. 2, Bk. 4, page 24. Gangosa meaning "muffled voice" in English is the same condition which gave to syphilis one of its older French synonyms, viz., the "grand râle" (big wheeze). Probably the husky voice of the syphilitic, noted since ancient times, is what introduced this word into the argot of soldiers and sailors. In the Navy one may hear for example such tidbits as "that marine was handed the old râle by a bitch he hooked up with in Nagasaki."

Gangosa as noted above was first described by Aretaeus the Cappadocian in the first century of the Christian Era. It is due not to *Treponema pallidum* alone but to team-work between treponemata, spirochaetes of phagedena, liquefying cocci and probably stink-producing organisms of several types acting upon a syphilitic substratum which is essential to its production. Gangosa makes of untreated syphilis one of the most terrifying conditions known to human medicine, a condition now rarely seen thanks to the early and adequate antisyphilitic treatment of modern medicine. When Odell wrote about gangosa for Guam in 1911, there were 338 gangosas in a population of 12,000 or about 1 to 35 of the inhabitants.

This rate, we believe, would make the 15th century pandemic of syphilis look like an Easter parade by comparison.

Before 1763, practically all medical writers considered yaws as simply malignant syphilis. This is shown by referring to the works of Sydenham (about 1681), of Wm. Byrd, a layman (1728), of John Brickell (1737), of John Huxham (1739), of Wm. Buchan (1769) and many others. In 1763, F. B. De Sauvages published his Nosologia Methodica, which seems to be the starting point of framboesia as an allegedly distinct disease. Since the appearance of Nosologia Methodica there have been two schools of thought in regard to so-called yaws, a conservative group, holding to the antecedent unity views, and a progressive (?) group, who have tried with little success to prove that De Sauvages was right when he described yaws as a distinct entity. We will later attempt to show by quoting from the authorities of different periods down to Manson-Bahr in 1936 that the same fallacious statements used by the author of Nosologia Methodica in defining yaws in 1763 have been carefully copied and transferred intact, to students of the present day. Such is the immortal fate of error when launched by a sufficiently illustrious teacher and purveyed to future generations of students by the great and near-great.

We will allow De Sauvages to tell us what yaws is, or was thought to be in the 18th century. His works have never been translated into English. Nosologia was embalmed in the medical Latin of his time, from which only the élite followers of Aesculapius could dig it out. There were a sufficient number of these, however, to translate his mistakes into all modern languages:

Definition: Framboesia; yaw of the people of Guinea; Epian or Pian of America, is a contagious disease endemic in Guinea and

in America, sometimes congenital as shown by Father Labat with the Caribs, the principal symptom of which is the frequent eruption of mushroom-like growths with the color and shape of the raspberry, hence, the African name yaw, which means raspberry; to these symptoms are added eating ulcers, exostoses, caries, ankylosis and emaciation.

If descriptions are accurate there are two varieties of this disease, one African called yaw, the other American named Pian, or Epian, which Pére Labat (Voyages to America) and Dr. Chevalier alone describe.

1. Yaws of Guinea, Edinburg Essays, Vol. 6. This is a disease endemic in Guinea, common among children and young adults, mostly among negroes: it is contagious, and having had it, one is from then on immune. It begins as maculae not larger than the head of a pin, which increase day by day and protrude, then the epidermis comes away from these and a white eschar appears from which small tumors reddish in color protrude, which in size and appearance resemble the raspberry or mulberry; *any black hairs in the vicinity become white* [Lev. XIII. 10]; these fungating growths reach their greatest size between two and three months. They may occur in any part of the body, but prefer the inguinal region, the pudenda [N. B.–C. S. B.], anus, face, and axillae; where there are many they are small; where few large. No inconvenience other than filth is experienced by the patient from these tumors which are sensitive but not painful. Among the fungating tumors there is a large one, chief, which resists the use of calomel ("aquila alba"), it is relieved by escharotics.

This disease is cured by the use of mercurial ointment or of calomel; these mercurials are not to be used before the tumors have attained full growth; if used too early, there arise osteocopic pains, caries and exostoses. The smaller ones having disappeared through the use of mercury the chief or primary one is relieved by escharotics.

This affection is different from syphilis as is evident from the history, altho scabies and other affections of this class are easy to cure by mercury.

2. Framboesia Americana, le pian or epian. The sick are called pianistes.

Pian among the negroes signifies strawberry, hence the name of the disease of which the principal symptom is the eruption of fungating excrescences with the color, figure, consistence and often the size of the berry referred to; another symptom is an indolent ulcer from which the disease begins, which in the Indies is commonly called the mother yaw, or mamma pian; a third symptom is called crab and consists of a sloughing of the plantar surface

of the foot or the palmar surface of the hand of which there are two types, the green crab and the dry crab.

This is a chronic, contagious and dangerous disease much more frequent in negro families than in white ones. The Montpelier surgeon, D. Virgile, who practiced in Hispaniola, or Santo Domingo, twelve years and treated many thousands of sufferers from pian, has described it to me as follows:

The disease takes origin from an ulcer which forms around the thumb or hand, superficial and moist, which differs from the common ulcer only in its persistence and in that it does not yield to ordinary remedies. This ulcer may occur on any part of the body, but prefers the tibiae; from this beginning more or less numerous fungous growths spring up over the whole surface of the body, the small ones being about the size of the variola pustule, so that if looked at from a distance, the appearance is much like that of smallpox; when few in number, they grow much larger and may attain the size of a walnut; whether small or large, these growths are of rose color or pale red, granulating, or studded with small papillae, moistened continuously with a reddish secretion and not adherent to ulcers but to the skin; where numerous the disease is likely to be mild; if only seven or eight protrude, the patient may not be cured by the remedies, there is danger the disease may return, hence the custom among the negroes of causing the more abundant eruption of tumors by sudorifics."

Crab virides are large excoriations occurring upon the sole of the foot or palm of the hand, persistent, not accompanied by a tumor, but of the same color and form as a muscle deprived of its skin; they are moist, exquisitely painful and cripple greatly the negroes who go barefoot, their edges being formed of torn flesh. The so-called dry crabs differ from the green ones in that the flesh in places is dry and cracked, roughened, powdery and painful.

The ulcer called mamma pian erodes and excavates the sensitive skin, when old the disease causes caries of the bones, and there are exostoses, the joints are ankylosed and there is recrudescence of night pains; these ulcers are pale, moist, and no caustic can produce an eschar upon them, and they are not accompanied by any pian or any fungating tumor, in which they differ most strikingly from the yaws of Guinea, which M. Virgile never observed though he had seen thousands of negroes who came from all the countries of Africa.

It is the rule that once cured of this disease, the health being retained for three months, man remains immune for life; no acute fever attends this disease; nevertheless from neglect or failure of

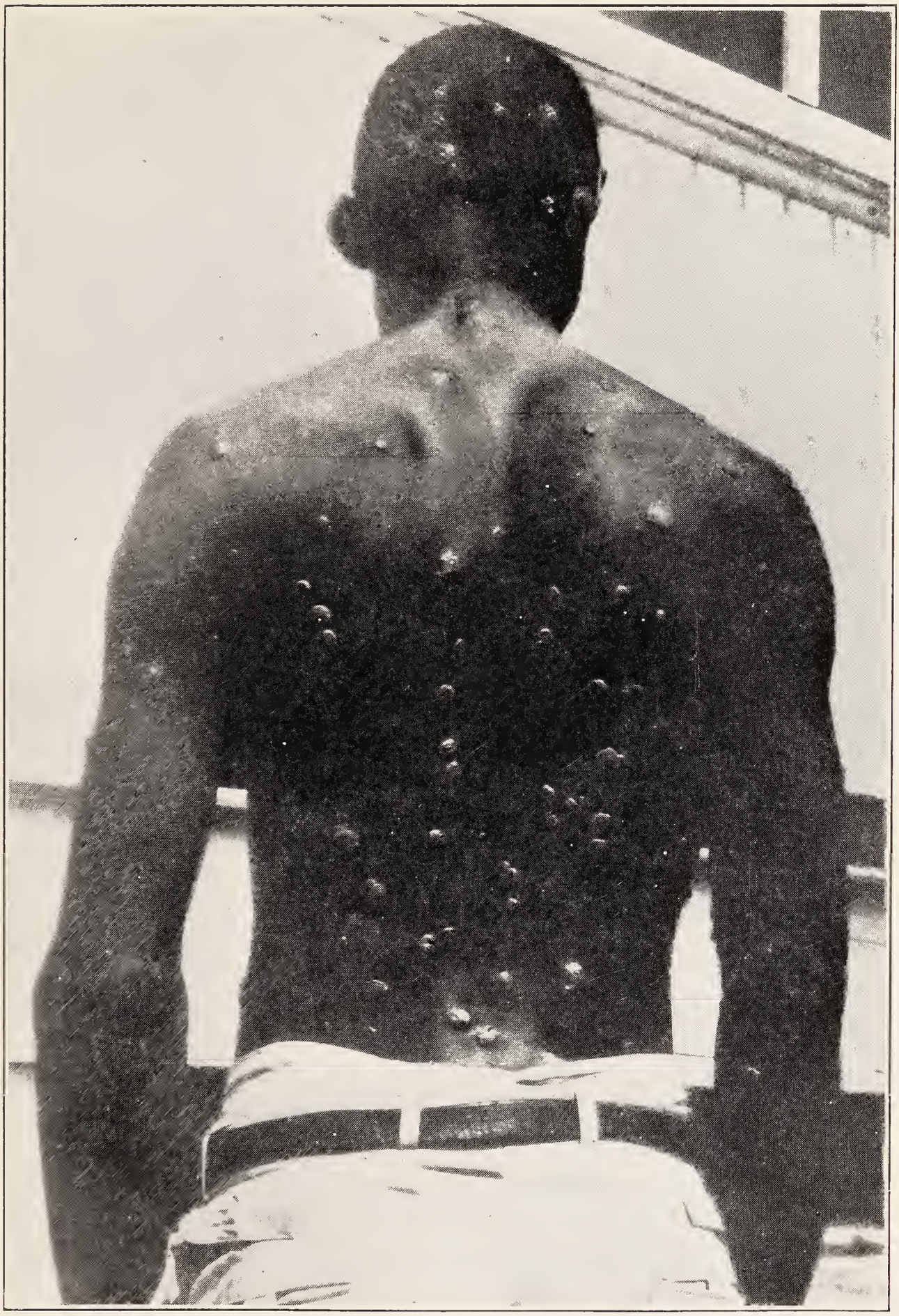


PLATE 10. A Haitian negro suffering from fungating yaws.

PLATE 11. Dactylitis from Guam.

remedies, extreme weakness often develops and a fatal phthisical lienteria intervenes. When old it produces new ulcers and the so-called crab yaws develops.

The mamma pian is contagious chiefly if a healthy person and a sufferer from pian sleep together, particularly if coitus is indulged in will the virus spread from the infected to the healthy. There is no symptom of recent syphilis such as ulcers, scabs, warts, buboes, gonorrhoea, etc., nor does the mamma pian occur on the genitals more frequently than on other parts; hence the proof that this disease differs from syphilis. Another method of infection which is frequent is by the intermediation of flies. If a fly light upon a pianic ulcer and then upon an abrasion in a healthy person, this latter is infected and becomes the mother yaw, then follow fungous growths, not in the ulcer but on the face, arms, trunk and elsewhere.

As to the cure of this condition, there is nothing certain at the present time. The negroes dilute the soot attaching to copper kettles with lemon juice and apply this magma to ulcers and fungating growths with the aid of a spatula. They annoint dry crabs, rough, hard tender cracks with tallow; this and the green crab are smeared with an ointment made of iron dross (common machefer) mixed with vitriol and alum in spirits of nitre, similarly the so-called mamma pian is cured.

D. Virgile cured some patients by using 80 baths and ten ounces of mercurial ointment administered during two months. A certain English physician mixes 12 ounces of sarsaparilla and of brown sugar with 24 pounds of spring water and places it in a glass container in the sun for 15 days; he gives the patient 4 glasses of this per day all other fluids being interdicted. It is called Gooldrink.

A man named "Sara" mixes seven or eight drops of solution of mercury in spirits of nitre with two pounds of an infusion of sarsaparilla and gives to pianics; with the help of this many have returned to health, but he killed a larger number or gave them phthisis. Indeed this remedy is looked upon as similar to the anti-venereal specific of Baron Van Swieten, which undoubtedly owes its success to corrosive sublimate. It is however inferior to it.

Père Labat's description of this disease does not appear to be accurate since he says that there appear over all the body pustules covered with yellow crusts, adherent and indolent, the size of the little finger, some of which suppurate while others are dry and powdery.

It is appropriate at this point to give a present-day conception and appraisement of the points supposed

to distinguish yaws and syphilis. This is taken from the admirable Diagnostics and Treatment of Tropical Diseases, by Admiral E. R. Stitt (MC), U. S. Navy, Ret.:

(1) The initial lesion of syphilis is generally located on the genital organs, while that of yaws is extragenital. The chancre of innocent syphilis is extragenital, however, and as yaws is innocently acquired there may be agreement in location.

(2) The difference between the Hunterian chancre, with its lack of induration and friable crust. Stokes emphasizes the impossibility of diagnosing the initial lesion of syphilis on clinical grounds . . . we have to depend on the darkfield search for spirochaetes and the Wassermann reaction. This holds for yaws.

(3) Glandular enlargement more pronounced in syphilis. In his inoculation of volunteers with yaws Sellards reports greater glandular enlargement than would be expected in syphilis.

(4) Absence of mucous-membrane lesions in yaws and their presence in syphilis. Noel has reported such lesions as occurring in the nose, pharynx, and conjunctiva of African yaws cases.

(5) Absence of visceral lesions in yaws. In the careful and routine autopsies conducted in the Haitian General Hospital, Choisser has found aneurisms and other arterial degenerations to be as common in yaws as in syphilis. Cerebral haemorrhage in young persons, who have had yaws, is a frequent cause of death. Pathological changes in liver and heart are infrequently found.

(6) Absence of tertiary lesions in yaws. For the past ten years the tertiary lesions in yaws have been accepted as occurring, and as being possibly more disabling than those of syphilis. Formerly these sequelae were classed as separate diseases.

(7) Absence of general paresis and tabes in yaws. This statement is denied by some of the most competent and experienced observers, as Harper in the Fiji Islands. At any rate, even if we accept this distinction, the same, in a measure, holds true for syphilis when prevalent in primitive peoples. It has been suggested that the exemption is connected with lack of treatment, and we know that some psychiatrists are concerned over the possibility that modern arsenicals may have increased the number of parasyphilitics. It has been claimed that freedom from these treponematous affections is connected with the great prevalence of malaria in the tropics—in such regions it is not necessary to induce malaria artificially (i.e., in the cure of paresis for example). While this may be a factor, we do know that the absence of tabes and general paresis is recorded in yaws regions which are free from

PLATE 12. Haitian girl with "un beau cas de pian" (Rulx Léon).

malaria. Another suggestion is that, having the same embryological origin, if the brunt of the attack is born by the skin, the central nervous system is spared. In articles on tabes and general paresis we often find the statement of the absence of any history of primary sore or secondary lesions. Our study of the records of cases of general paresis in the Navy would indicate that of 57 such cases, no evidence could be obtained of either a chancre or secondary eruption in 27 cases.

(8) Absence of heredoyaws (congenital yaws). Yaws is an infection of childhood and the period which would elapse before sexual maturity would probably bring about a latency in the circulation of the yaws treponemata, thus sparing the embryo and foetus. It is well accepted that a syphilitic father, with the disease of more than five years standing, rarely is responsible for a syphilitic foetus. It is in the marriage of men with more recently acquired syphilis, and the infection of the wife, who is thus in the early period when the disease is active, that we most often find the diseased foetus.

It would be possible to continue the discussion of the so-called points of distinction between yaws and syphilis but it would seem that a study of this question by a group of competent clinicians and pathologists would be desirable.

Differences in clinical manifestations are well recognized for the same disease as it appears in young children and in adults, and is true of the eruptions of the same disease in white and in colored people.

A striking feature of yaws is its restriction to rural districts with primitive sanitation. In Haiti we find yaws in the distant villages and syphilis the disease encountered in Port-au-Prince. In the Philippines we go to the outlying barrios to get our yaws cases for study—in Manila the treponema breeds syphilis. There is not either in Haiti or in the Philippines the question of distinction of race. It was an old saying in England during the early part of the 19th century that when a man contracted *yaws in the tropics he came home with syphilis.*

We know that yaws cases came into the West Indies Islands with the African slaves and we know that this was one of the most important of the communicable diseases of the slaves of that part of the world. What became of yaws which must have been introduced into our Southern States by the slaves—their descendants now only show one *treponematous* infection.

The Navy experience with Guam yaws illustrates the compelling force of "authority" in the councils of

Aesculapius. All experience and tests used in medicine indicated that so-called yaws was syphilis. But authority said "yaws is *never* congenital" and so we tried to live up to the dicta of the authorities. The therapeutic tests indicated unmistakably that yaws and syphilis were the same but authority replied "yaws is a disease of childhood, it comes before sexual maturity." Experience indicated that this condition gave positive tests with all modifications of the Wassermann and flocculation techniques. Authority answered "leprosy also gives positive tests with syphilitic antigen, what you have in Guam are the *two* diseases syphilis and yaws," thus indicating that the chief intellectual weapon possessed by the 100 per cent framboesiologist is petitio principii. The medical officer asked the authority, "Now if yaws is different from syphilis, if, in reality, the one does not immunize to the other, why in the name of Hippocrates, do we not see genital chancres in the natives?" Authority is still thinking this over but we explain it in the Hutchinsonian way thus: the reason these people do not acquire venereal syphilis is because they already have the innocent complaint acquired either by heredity or innocently in childhood. And the reason they do not often give syphilis to white people is because their syphilis is either *latent* or *tertiary* which is *practically never* dangerously contagious for others. The syphilitic prostitute similarly is *not* very dangerous to others four or five years after her infection whether she has taken treatment or not.

Physicians stultify their training with their pseudoscientific attempts to "prove something" about syphilis, using monkeys, rabbits, guinea pigs and llamas. This great unintentional experiment at Guam screams the truth at us that yaws immunizes to syphilis in the human being, the normal host of *Treponema pallidum,* whatever may be the case in the

artificial environment offered by such "gratuitous hosts" as the laboratory and domestic animals. Naval Medical Officers have been told by more than one framboesiologist of international fame what they have in Guam. They now *know* that what they are dealing with in Guam is syphilis, and that yaws, so-called, is simply the "native interpretation" of that protean malady.

C. M. Hasselmann has recently described the Epidemiology of Yaws, in the China Medical Journal, December, 1931, p. 1131, under the title: "Yaws and Syphilis: Problems, Clinical Studies, and Experimental Evidence Concerning Their Relationship." In summary he sets it off from syphilis by the following points: (1) limitation to the tropics, (2) spotty distribution, (3) lowered resistance of *T. pertenue* as compared to *T. pallidum,* (4) effect of altitude in making yaws lesions take to the muco-cutaneous junctions. An attempt was made by the writer to answer Hasselmann's points in a paper, published in Archives of Dermatology and Syphilology, Vol. 32, September, 1935, pp. 446–450. It is here pointed out, (1) that the yaws syndrome is neither limited to the tropics nor to areas between isotherms of 20°, (2) that the spotty distribution is a mirage, (3) that *Treponema pallidum* has but slight resistance also, (4) that altitude makes clothes necessary which cause the preponderance of yaws lesions at muco-cutaneous junctions.

It will be helpful in understanding the point of view here presented if one remembers the following: (1) Among people with primitive habits in personal hygiene, syphilis, a chronic constitutional disease, becomes one of the exanthemata of childhood. (2) Habits and customs as to treatment and personal cleanliness of enlightened races of people make a venereal disease of syphilis. (3) Yaws is not a dis-

tinct *pathological* entity. It is the result of *two* pathological processes, one inflammatory overlying a treponematous infiltration of the derma. (4) Of the several syphilides, only the roseola is essentially treponematous; the others are due to help from without.

CONCLUSIONS

(1) At present the term yaws is little more than a definition or group-word which excludes venereal primary lesions and congenitalism, and stresses one of several well recognized types of treponematous eruption and only one phase of that. Yaws is limited by definition to the tropics, which for a potentially venereal disease makes it *the only* contagious, inoculable, human disease thus delimited.

(2) *Treponema pertenue* is a synonym of *Treponema pallidum.*

CHAPTER V

NOMENCLATURE

"What's in a name? That which we call a rose
By any other name would smell as sweet."

Physicians are a contrary group of men! This is difficult to understand because scientific medicine is the highest expression of science. Furthermore, very many of the other branches are offshoots of medical science, and all we might say are ancillary to it.

Considering the vast number of names which physicians have had to use since the dim dawn of medicine, we would expect them above all others to be keen for precision in names and for an adequate system of nomenclature. As a matter of fact, they are the most sloven of all scientists in the use of names, at any rate in their use of scientific names.

The Swedish naturalist Linnaeus (ennobled as Karl Von Linné), (1707–78) a graduate Doctor of Medicine, was the originator of modern zoological and botanical classifications. He devised the binomial system of naming plants and animals. The naming of plants and animals based on this binomial system is governed by International Rules of Zoological and Botanical Nomenclature. Considering the millions of names necessary to cover microscopic and visible plants and animals it happens often that the same name has been given to entirely different forms of living things. To avoid confusion the International Code, based on the rules of Linnaeus, as set forth in the 10th Edition of his Systema Naturae, 1758, is made the basis of binary zoological nomenclature. There can be only one legitimate name for one living thing and all others which have been given to a form become homonyms when this right name is determined. An International Committee on Zoological

Nomenclature is the supreme court in this matter, and their decisions are final. Let us see how this code worked out in the naming of the organism responsible for syphilis, certainly one of the most important discoveries ever made by any scientist. (From Stitt's Practical Bacteriology Blood Work and Parasitology, 8th Edition, 1927, page 375):

The law of priority and the name of the cause of syphilis.—Schaudinn gave this organism in 1905 the name of *Spirochaeta pallida*. Ehrenburg, in 1834, had used the name *Spirochaeta* for protista of a different character, so that this designation of the genus was not permissible under the code. Later on in 1905 Vuillemin proposed the generic name *Spironema*. This name, however, was found to have been used in 1864 by Meek for a genus of mollusks and by Klebs in 1892 for a genus of flagellates. Consequently, being a homonym, it was not available.

(A generic name can be applied to only one animal genus and if a similar name is subsequently given another genus it is a homonym and is to be rejected.)

On Dec. 2, 1905, Stiles and Pfender then proposed the name *Microspironema* but as Schaudinn published on Oct. 26, 1905, the designation *Treponema,* the name *Treponema pallidum* had to be accepted as the proper zoological name for the organism of syphilis.

This is a wonderfully effective system of naming living things and we physicians are reprehensible in our disregard of it. Most medical journals and many of the current editions of bacteriologies, books on the practice of medicine and works on tropical medicine use the homonym *Spirochaeta pallida,* or fail to write the generic name with a capital letter and the species name with a small letter or in some other way offend against the code. This all detracts from the appearance of the printed page. Physicians do not deserve this low reputation for respect for the law. Their contributions to civilization, human advancement and happiness have been greater than those of any other scientists and they should not disregard those responsibilities and refinements which make for the

perfect and economical transfer of that which is best in the medicine of today to future generations of physicians. A Baltimore physician who had made an important discovery of the microscopical cause of a serious disease, was once asked in a letter for certain information regarding the organism in question. The physician who was asking for this information used the proper scientific name of the organism discovered by physician No. 1. The latter indignantly replied that *he* had never given his organism any such a name as that, and closed the incident by not giving the information sought. The discoverer does not own the truth he discovers. This belongs to humanity. He is entitled to the honor of discovery only.

There is a further side to the question, "what's in a name?" which has particular significance in the names used for the venereal diseases. At another place in this little volume we have made a special plea for the use of their proper medical names by newspapers, in radio broadcasting, and by all other means of popular enlightenment about this dangerous group of diseases. Until mothers can speak to daughters, the future mothers, about the sterilizing effects of gonorrhoea, or until fathers can speak to sons about the killing effects of syphilis, how shall we ever hope to decrease the damage done to humanity by these infections? The doctors are at the end of their string. Responsibility should be placed upon newspapers, radio companies and other agencies for enlightening the public. Up to 1936 use of the names gonorrhoea, syphilis and chancroid was taboo by all these agencies of popular education. That grand old newspaper, *The New York Times,* printed the name "syphilis" as a maiden effort, so far as I can make out, on June 8, 1935. But it *must* come and these agencies of popular education might just as well face the music.

Now to come back to the question which headed this chapter. What's in a name? The answer is there

is much, *much* in a name. Had Juliet asked, on that occasion of their wooing, "What's in a name, a rose by the name of 'gonorrhoea' would smell as sweet?" Romeo would certainly have answered in substance, "No, Juliet, you can't sell that thought to me." Such a faux pas would probably have ended the romance right there.

People undergoing the preliminaries to creating a family, as in the case of Romeo and Juliet, should have every assurance the state can give that no taint of syphilis or gonorrhoea mars the escutcheon of either contracting party. Millions of Romeos have given to millions of Juliets the tragic consequences of syphilis and gonorrhoea done up in the paraphernalia of Cupid and camouflaged with the intriguing language of flowers.

CHAPTER VI

ON ADVERSARIES

> Oh that one would hear me! behold, my desire *is, that* the Almighty would answer me, and *that* mine adversary had written a book.
>
> Job XXXI. 35.

Fortunately, many who are adversaries, and a few who are not, have written books on the subject of yaws during the past two hundred and fifty years. It will be enlightening to quote from the best authorities at various periods during the past two hundred and fifty years upon the subject of the diagnosis of yaws, and we may thus see where certain fallacious statements have crept in, and how students have copied these fallacies generation after generation without taking the trouble to verify them as to accuracy, and without meditation but blindly accepting them and handing them along. The works we shall quote are as follows:

I

The entire works of Dr. Thomas Sydenham, Third Edition, by John Swan, M.D., 1753. Sydenham's works were published in Latin, and his small section on yaws shows several inconsistencies. For example, he subscribes to the old bromide about "*the* Venereal disease" being presented to Europe by America, then says the yaws is the same as the lues venerea and that to his way of thinking it was brought to the West Indies by Guinea negroes in the slave ships. His epidemiology is, however, a little cameo for beauty, brevity and accuracy. Later, writers have written volumes on the epidemiology of so-called yaws, but this little shaft still has its spear-head in their vitals. From the letter of Dr. Henry Paman requesting

Sydenham to write his article, "The History and Treatment of the Venereal Disease" dated February 12, 1679–80, it would appear he must have written the article in 1680, or about 9 years before he died.

England has always sent her young and adventurous medical officers to tropical and distant stations. This continues to the present time. Of course, one could not expect the master, Sydenham, to ship on a slaver, but Mr. Claxton, the surgeon on a slaver "since the regulating act," was doubtless able to tell the master all about the diseases and mortality that was inherent in the slave trade. See page 61. History certainly repeats itself. Had Sir Patrick Manson, in the 1st Edition of his book, listened to the English masters on syphilis, such as Berkely Hill and Jonathan Hutchinson, instead of the "Exotics," it is my firm belief that text books would not now be cluttered up with this monstrosity called yaws. But let us get back to Sydenham's description of yaws, after a few words about this great physician himself. The esteem in which Thomas Sydenham was held by his professional contemporaries is shown by reference to the title page of Nosologie Methodique, the French translation of De Sauvages' Work, given on page 95 of this volume. The opening lines explain: "Dans Laquelle Les Maladies sont rangées par classes, suivant le systême de Sydenham & l'ordre des Botanistes."

Hippocrates was his pattern, and more than any other medical man he resembles the Father of Medicine in his mode of portraying disease and his dignified ethical regard for his patients, holding himself "answerable to God" for their care and, himself a martyr to stone and gout, a fellow-sufferer along with them. This power of imaginative sympathy, a trait not usually found in the self-centered Saxon, is prominent in Sydenham's portrait as painted by Mary Beale, representing a Puritan in bearing, like Cromwell or Milton, yet a beautiful face withal, the fine brow, melancholy eye, and sensitive mouth revealing a nature stoical rather than harsh, sad rather than sour, as of a Puritan under protest. (History of Medicine, by Fielding H. Garrison, A.B., M.D.)

Whence, and at what time brought to *Europe*.

5. The *venereal disease* was first brought from the *West-Indies* into *Europe*, in the year 1493, for before that time the very name of it, as far as we can collect, was unknown amongst us; whence this disease is generally reputed to be *endemic* in those parts of *America* where we first planted our colonies (g). But to me it rather seems to have taken its rise from some nation of the *Blacks* upon the borders of Guinea (h); for I have been informed by several of our countrymen of great veracity, who lived in the *Caribbe* islands, that the slaves which are newly brought from *Guinea*, even before they land, and likewise those that live there, are afflicted with this disease, without having known an infected woman; so that it frequently seizes whole families both men, women, and chil-

(g) That the *venereal disease* was known neither to the *Greeks* nor *Romans*, should seem probable from the science of all their physicians for at least two thousand years, and its not having been mentioned by the ancient historians, poets, and other old writers of both nations. And as a further proof of this assertion, we may urge the authority of all the physicians, who lived at the time of the first eruption of this disease, who in general agree, that it was first brought into *Europe* towards the close of the fifteenth century; that in symptoms it differed from every other distemper, that had ever been known or observed; that the infection was propagated throughout *Europe* from the kingdom of *Naples*, where it first spread itself amongst the *French* and *Neopolitans;* and lastly, that it was imported to *Naples* by the *Spanish* soldiers, who served under *Christopher Columbus*, from the *West Indies*. Astruc of *the venereal disease, the* English *translation*, vol. I, book I, chap. I.

I cannot be of opinion, says Dr. *Cheyne*, that either the *small* or the *great* pox was originally a distemper peculiar and appropriated to any certain time or climate, or *endemial* any where, no more than the *itch*, *leprosy*, or *plague*. A particular air, climate, original *frame*, *manner* of living, *epidemical* vices, and the like, may vary the symptoms, exasperate and increase the malignity and degrees of one distemper, called by such a name, more than another; as particular species of plants differ by culture, sun, and soil; but that they should alter the particular nature and species of a distemper, by which it is dis-

Called the *yaws* in some parts of *America.*

dren. And, as far as I can learn, this disease, which so frequently attacks these miserable people, does not at all differ from what we call *the venereal disease,* with respect to the symptoms, *viz.* the pains, ulcers, &c. allowing for the diversity of climates; tho' it goes under a very different name, for they entitle it the *yaws.* (i). Nor does their method of cure differ from ours, for in both cases a salivation raised by quicksilver carries off the disease; notwithstanding what we say here of the excellent virtue of *guaiacum* and *sarsaparilla* in those places where they grow, which is judged to be nearly lost in their long passage to us.

tinguished from all others, I think is unnatural, *unphilosophical,* and absurd.—*Method of cure in diseases of body and mind,* p. 198.

(h) This notion is directly contrary to matter of fact; for it is certain that no *Blacks* were transported into *Hispaniola* before the year 1503. But this disease was contracted by the *Spaniards* in Hispaniola in the year 1493, was carried into *Spain* the same year, or in the year following, and from thence into *Italy* in 1494, or 1495, where it infected the *French* and *Neapolitans,* and by them was soon after spread all over *Europe. Astruc of the ven. dis. the English translation, vol. I, book I, chap. XI.*

(i) This disease, says Dr. *Turner,* in *Guinea* is called by the name of *yaws,* as I have heard from some sailors, as also from the captain of a ship, who have frequently made that voyage, and as I have reason to believe from an instance or two, I may very probably communicate hereafter. *See his Siphilis, 4th edit. p. 6, 7.*

AUTHOR'S NOTE: The lettered footnotes to Sydenham's text are opinions of the editor of the 1753 edition. Sydenham died in 1689. Astruc's work on Syphilis was published in the decade 1730–40.—*C. S. B.*

II

The second adversary who published a book is M. Francois Boissier De Sauvages, whose article on framboesia from the Latin Edition of his works is translated in its entirety and constitutes part of another chapter of this volume. At the time this was translated I was not aware that the whole of De Sauvages' Nosologia Methodica had been translated into French. Perhaps many physicians and others are as poor Latinists as this writer, but nevertheless can read French with ease. For the benefit of those who would like to get the feel of the medicine of that period I give here the title page of this French translation of his three-volume work:

Nosologie Methodique, Dans Laquelle Les Maladies sont rangées par classes, suivant le systême de Sydenham, & l'ordre des Botanistes. Traduite du Latin de M. François Boissier De Sauvages, Docteur en Medecine, & Professeur Royal en L'Université de Montpellier; de l'Academie des Sciences de la meme Ville; de celles de Londres, de Upfal, de Berlin; de la Societé Physico-Botanique de Suède, des Curieux de la Nature, & de l'Institute de Bologne. Ouvrage augmenté de quelques Notes en forme de Commentaire, par M. Niccolas, Chirurgien gradue. Si morbi cujuslibet historiam diligenter perspectam haberem, par malo remedium numquam non scirem adserre. Sydenham. Tome Premier. A Paris, Chez Hérissant le Fils, rue des Fossés, de M. Le-Prince, vis-à-vis le petit Hotel de Condé. M. D C C. L X X I. Avec Approbation, & Privilège du Roi.

Nosologia Methodica was one of the earliest if not actually the first to treat yaws as a distinct disease. De Sauvages first used the synonym "framboesia" for this syndrome. We see in the English translation of his article where many of the fallacies perpetuated by yaws experts find origin. One of these is where he speaks of the raspberry-like lesion of yaws and remarks "any black hairs in the vicinity become white." Another adversary, Maxwell, who will be referred to later, takes to task certain writers (De Sauvages not

among them) for making this statement. Nosologia got it into the medical books however and De Sauvages took it from Lev. XIII. 10, which reads: "And the priest shall see him; and behold, if the rising be white in the skin, and if it have turned the hair white, and there is quick raw flesh in the rising it is an old leprosy in the skin of his flesh." Much of the "yaws description" was "inspired" by the Bible. As we have given his framboesia completely translated at another place, we will not dwell further upon it here. It will be seen, however, that he describes what he thinks are three or four different conditions, always assuring his readers that each is different from syphilis.

III

The third adversary is not really an adversary at all for we feel that if an interval of 76 years did not impose an insurmountable objection (Winterbottom died in 1859), this one might consent to sit down and talk things over with the author of this volume, which is more than present-day framboesiologists will do. The author's views as set forth in this little volume are about as popular with his confreres as a lodge in a garden of cucumbers. Before mentioning his name, it will help in appraising the handicaps under which he worked if we mention a few critical dates having a bearing upon this matter.

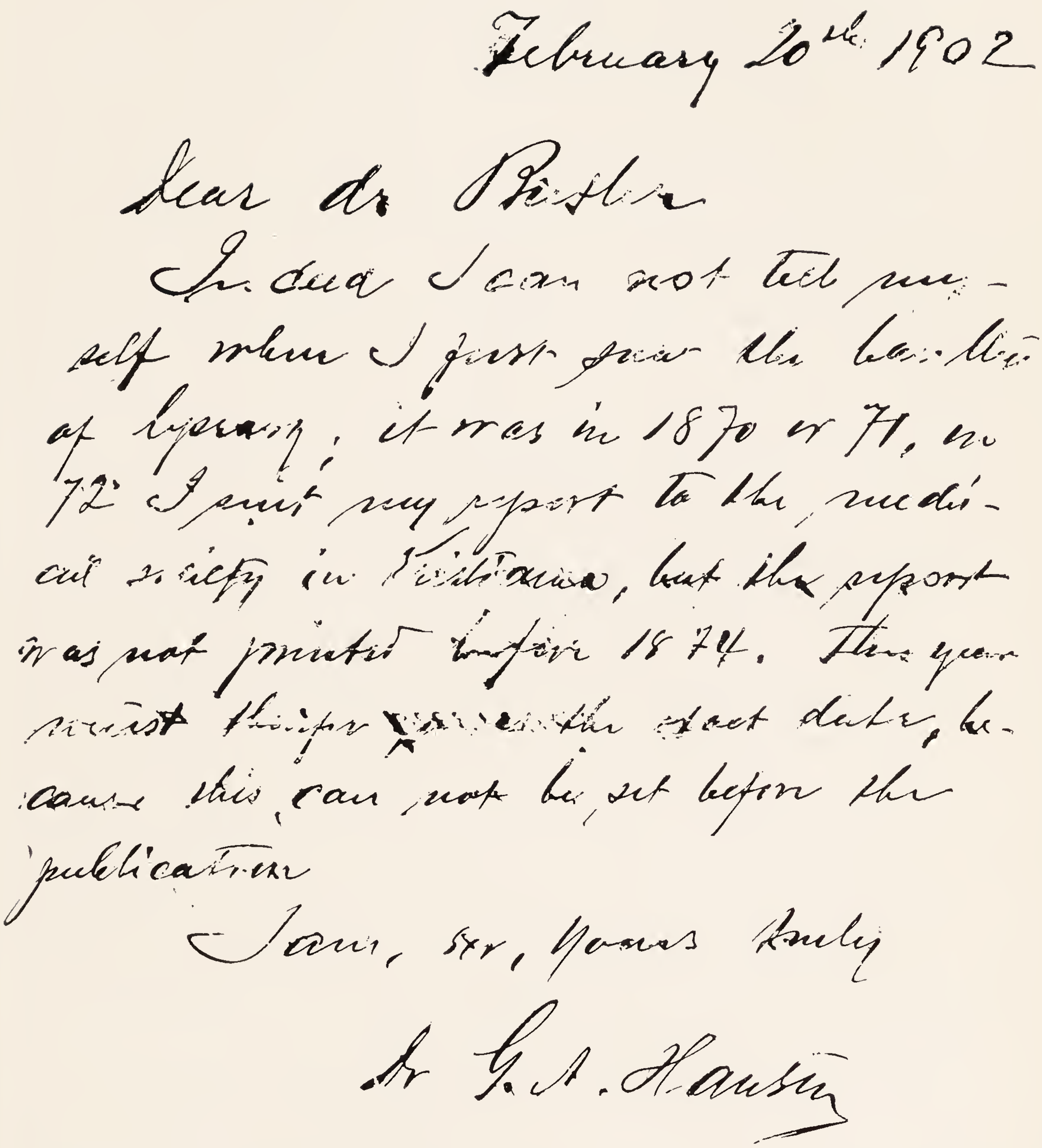
(a) Until the decade 1850–1860, gonorrhoea, chancroid and syphilis were considered as a single disease, "*the* venereal disease."

(b) *Neisseria gonorrhoea* was isolated and proved to cause gonorrhoea in the year 1879.

(c) *Haemophilus ducreyii* was isolated and shown to be the cause of chancroid in 1888.

(d) Armauer Hansen discovered *Mycobacterium leprae* between the dates 1871–74.

(e) *Treponema pallidum* was discovered and shown to cause syphilis in 1905.


February 20th 1902

Dear dr [illegible]

Indeed I can not tell myself when I first saw the bacilli of leprosy; it was in 1870 or 71, in 72 I sent my report to the medical society in Christiania, but the report was not printed before 1874. Then you must [illegible] [illegible] the exact date, because this can not be set before the publication

I am, sir, Yours truly

Dr G. A. Hansen

Plate 13. A statement from Dr. G. A. Hansen as to the date of discovery of the leprosy bacillus.

(f) The Wassermann reaction was developed in 1906.

Our third adversary is Thomas Masterman Winterbottom, M.D. (1764 or 65–1859). For ease of reference, the full title and publisher are given:

An Account of the Native Africans in the Neighborhood of Sierra Leone; To Which is added, An Account of the Present State of Medicine Among Them come Fancuil CH′ A Pena Co., By Thomas Masterman Winterbottom, M.D., Physician to the Colony of Sierra Leone, (2 Volumes) printed by C. Whittingham, Dean Street; and Sold By John Hatchard, 199 Piccadilly, and J. Mawman, Poultry—1803.

Winterbottom's sign[1] mentioned elsewhere as helpful in picking out cases of sleeping sickness will indicate that he was a physician of discernment. His description of yaws is a classic and we feel that if the Manila framboesiologists would but read the description of yaws as given by Winterbottom for human beings, they would wish to withdraw the statement that "the organism of yaws is ectodermotropic and finds its home in the outer layers of the skin while *T. pallidum* is mesodermotropic and attacks all the organs of the body but prefers the mesodermic tissues." Winterbottom "agrees" that in the neighborhood of a yaw, the hair is gradually changed from black to white. Some of his descriptions are most amusing, viewed from the vantage ground of 130 years. Take for instance his comparison of the yaw fly and the "most dexterous surgeon" as introducers of poison. Nowadays we might be tempted to ask: "Dr. Winterbottom, are you trying to have fun with us?" Wise-cracking internists at present would probably retort with: "Yeah, those damn surgeons, they are still doing it!" Here are the paragraphs:

[1] N.B. Most medical dictionaries of the present give this symptom as described by Thos. Winterbottom, American physician of the 19th century. This is an error.

This disease is communicable in every way in which syphilis can be produced, though it is less frequently contracted by coition; because, as the complaint can only affect the same person *once* in his lifetime, and as in Africa it is usually gone through in childhood, of course this mode of propagating it is in a great measure prevented. The disease never spreads by miasmata floating in the air; it can only be communicated by the application of matter from a yaw pustule or sore to a wound in a person who has not previously laboured under the disease. The complaint is sometimes inoculated by means of a large fly, called in the West Indies the yaw fly. When the insect alights upon a running yaw, which the Africans never keep covered, and afterwards settles upon the body of an uninfected person, *it introduces the poison, if there happen to be a wound or scratch there, as effectually as the most dexterous surgeon.* [Italics of C.S.B.]

Our present adversary does not think yaws is ever hereditary and mildly chides Dr. Mosely, who had expressed the opposite view.

The doctor has certainly committed a slight error when he says, that the yaws "breaks out in negroes without any communication, society, or contact," and that "the seeds of the yaws descend from those who have ever had it to their latest posterity." This is so far from being the case in Africa, and it is to be hoped in the West Indies also, that in no instance whatever does the disease arise except from the application of the contagious matter of yaws to a person who has not previously been affected with it. Neither is there more reason to suppose that the seeds of this disorder are transmitted to posterity by hereditary descent, than that the contagion of the small pox, measles, or any other of the exanthemata, are communicated hereditarily.

We now know that *T. pallidum* is the single and only "seed" of the several exanthemata mentioned which is transmitted to posterity. Small pox and measles are *acute,* self-limited diseases and we do not yet know what causes either.

However, we must leave space for others to strut and fret an hour upon the stage! Before leaving Winterbottom, the treatment recommended at the beginning of the 19th century for the terrible gangosa will be given.

Dr. Wright, of Jamaica, after informing us that the yaws produce the same dreadful effects on the limbs, nose, and throat as the venereal disease, adds, that they are curable by mercurial alteratives and diaphoretic decoctions. "In all the preparations of mercury, he continues, the corrosive sublimate appears to me to be the best for curing such inveterate disorders, especially when accompanied with such medicines as promote its natural tendency to the skin. Of this sort is guaiacum and sarsaparilla. I have found the following formula the best:

"Gum guaiacum, ten drachms.
Virginia snake root, three drachms.
Pimento, two drachms.
Opium, one drachm.
Corrosive sublimate, half a drachm.
Proof spirits, two pounds.

"To be mixed and digested for three days, and then strained.

"Two tea-spoonfuls of this tincture given in half a pint of sarsaparilla decoction twice a day, will, in general, remove every symptom of lues or yaws in four or five weeks.

"When mercury has been prematurely used, though it causes the pustules to fall off, and clears the skin, yet it does not cure the disease. [He knew his nosologia—C.S.B.] A train of disagreeable symptoms sooner or later appear, which often continue to harass the patient during the miserable remnant of his life; this is called by the negroes the bone-ache. The unhappy sufferer is tormented with deep seated pains in the bones, especially round the joints, which are occasionally aggravated to a violent degree: the periosteum becomes thickened, inflamed, and painful, and nodes are formed on the bones. When these symptoms have continued for some time, the bones are affected with caries, and even become soft, and lose their form."

It is safe to say that Dr. Wright's prescription could not, at the present time, be filled in any drug store in Greater New York without going outside for some of the ingredients. Guaicum, snake root, pimento and Sarsaparilla have gone to the pharmaceutical limbo. *Treponema pallidum* "thrives on a diet of opium and alcohol." Mercury (corrosive sublimate) is all that remains. As the donkey has been man's faithful friend through the ages, so the mercury molecule has cured him of his worst enemy.

Without the two, progress of civilization would have been greatly retarded.

IV

Our fourth adversary is James Maxwell, M.D., and his "Observations on yaws and its Influence in Originating Leprosy." This was awarded the Gold Medal of the Senatus Academicus of the University of Edinburg for its excellence. It was published at Edinburg in the year *1839*, by Maclachlan Stewart and Co. A publisher's note which accompanies this essay reads as follows:

NOTE

(Five plates, without colour, accompanied Dr. Maxwell's Essay:—

I. Represents the preliminary eruption of fungoid yaws.
II. Eruption, preliminary to second variety (crescent-shaped yaws).
III. Yaws attacking the toes.
IV. Yaws ulcers.
V. Crab yaws and running yaws as they attack the soles of the feet.

The plates have been omitted in the present reprint.

Dr. Maxwell wrote, as he says, to supply a long-felt desideratum, and to furnish the practitioner with a treatise, to which he may confidently refer as a guide. He also wished to dissuade from the employment of mercury in the treatment of the disease.)

Recall that in the year 1839, thanks to Jean Astruc, John Hunter and others, syphilis, gonorrhoae and chancroid were all considered the same disease and that it was thirty-five years before Hansen discovered the organism causing leprosy. Thus may we sense the great disadvantages under which Maxwell struggled as compared with us one hundred years later.

All who are interested in this subject should secure "Selected Essays and Monographs, Translations and Reprints from Various Sources. London: The New

PLATE 14. Dry crab; Haitian.

Sydenham Society. MDCCCXCVII." This volume contains fourteen valuable monographs, four of which are pioneer papers upon yaws and four upon syphilis. Except in the case of Maxwell's article we can only briefly refer to the others from this source.

In Maxwell's table of contents occur such items as these: precursive eruptions; fungoid yaws; yawy whitlow; latent period; yawy ulcer of the throat; recurrence of yaws; crescent-shaped eruption, &c. These titles cause unwelcome and unpleasant thoughts to arise in the mind of the modern framboesiologist. His definition does not allow yaws to have variety of eruption, it must be "monotonously fungoid." There must be no latency in yaws because "it is the easiest of all constitutional diseases to cure." Then too, yaws must never affect a mucous membrane, so that a "yawy ulcer of the throat" is unthinkable to every representative of the order of "Exotics." Any suggestion of an ulcer with a "crescent-shape" immediately evokes the exclamation "Why the patient has *both* syphilis and yaws." Maxwell describes symptoms for his human cases of yaws that are considered by the modern "yaw-men" as hitting below the belt because they violate all the rules of their personally-conducted disease. However as Maxwell was one of the physicians who put yaws into nosology it would seem they must endure him, for all his experimental material is from human inoculations.

The terrible disease yaws may be, can be envisaged by the following:

> One of the most painful and distressing consequences of suckling a child with fungoid yaws surrounding the mouth, is that a destructive species of ulceration is sometimes communicated to the breast of the nurse, who has already been affected with the disease in its usual form. The ulceration begins and insulates the nipple by excavating a border of more or less breadth around its base, which often stops here, but in some cases it extends laterally, destroys the greater part of the breast, and the nipple is now

removed by ulcerative absorption. If the disease be not arrested, it spreads towards the axilla, strong constitutional disturbance supervenes, and ultimately both breasts may become affected; the child, in the interim, is attacked with febrile symptoms, and, unless weaned, it dies in a state of great emaciation, and the nurse becomes hectic and gradually sinks from the irritation of a painful disease.

Nothing mild or "ectodermotropic" about that! The following case will shock those authorities of the present day who "intone from the yaws prayer book" that yaws is never hereditary and never congenital:

The yaws is considerably modified during pregnancy, and it is never communicated to the foetus in utero. It is very common to see young children at the breast with the disease, but the earliest case which I ever witnessed was the following:—A young healthy woman, in her second month of pregnancy, had a scurfy eruption of a pretty general description, unattended with constitutional derangement, shortly afterwards followed by yaws in a mild form, which spontaneously healed before her delivery. Her infant boy, when 3 months old, was seized with stiffness, appeared to be in great pain, and cried almost incessantly. The symptoms were attributed to a fall, when an eruption of benignant yaws suddenly broke out. At the time this happened there was not a case of the disease upon the plantation, and as the mother was apparently clear of it, the relatives conjectured that it must have been contracted in utero; but a more rational explanation would be to suppose that the mother had some remnant of yaws about the labia, and that it had been communicated to her infant through the medium of a scratch in transitu.

Now let us look at Maxwell's "Diagnoses between syphilis and yaws" and I will not further belabor the argument as far as Maxwell is concerned:

Diagnoses between Syphilis and Yaws

1st. Syphilis appears in 6 or 8 days after contagion. Yaws takes from 6 weeks to 3 months.

2nd. Syphilis may occur frequently from distinct infection. Although yaws may recur oftener than once, from the susceptibility not having been destroyed, yet it cannot be communicated

by future inoculation, so as to display the disease in its normal state.

3rd. The constitutional symptoms of the venereal disease are generally progressive, and seldom disappear without the aid of medicine. The yaws generally admits of a spontaneous cure.

4th. Syphilis is capable of affecting the foetus in utero. Yaws never has been known to do so.

5th. Exanthematous eruptions and febrile affections have a temporary power in suspending yaws. Not so in syphilis.

The deficiencies in medical knowledge in 1839 were so great that he could not surmount them. We of 1936 see at a glance what the poor man was contending with.

I cannot leave Maxwell however without referring to a paragraph in J. M. H. MacLeod's "Contribution to the Histo-Pathology of Yaws," published in the British Medical Journal, September 21, 1901, p. 797. His third paragraph reads as follows:

> Though it may be said with some truth that little has been really added to our knowledge of yaws since James Maxwell's classical essay was published in 1839, yet quantities of literature in the shape of Government reports and contributions in the various journals have collected round the subject since then, and recently the interest of the dermatological world has been aroused by the controversy which is at present being carried on regarding the identity of yaws and syphilis.

It may be said truly that nothing new has been added up to 1936. In fact, nothing new has been added to our knowledge of yaws since 1763, if we contend that it is a distinct entity. Much knowledge has been gained to show that if the yaws-syphilis controversy is ever to be settled correctly it can only be done by expunging yaws from our nosology of disease. "Nothing new" can be added for this reason. Since it got into Nosologia Methodica as a distinct disease everything has been said about it that has been said about syphilis, and the exact reverse of it. Witness these: "hair turns gray," "the hair does *not* turn

gray." The hair "falls out," the hair "does *not* fall out," "mercury cures yaws," "mercury does not cure yaws," yaws "affects the mucous membranes," yaws "does not effect the mucous membranes," yaws "is hereditary," yaws "is not hereditary." So we could find authorities for any statement within the range of pertinency one might make and its reverse. We have exact knowledge as to what syphilis is and what it will do, but yaws *as a distinct entity* is still terra incognita.

V

Our fifth adversary is Dr. J. Numa Rat, and for reasons to be immediately disclosed we shall dispose of him in short order. His contribution is:

Yaws: Its Nature and Treatment. An Introduction to the Study of the Disease. By J. Numa Rat, Medical Officer, Leeward Islands, West Indies. Respectfully Dedicated to His Excellency Sir W. F. Hayes Smith, K. C. M. G., Governor and Commander-in-Chief of the Leeward Islands, with Prefatory remarks by Jonathan Hutchinson, F.R.S., LL.D., London: Waterlow & Sons Limited, Printers, London Wall. 1891.

No one wishing to know yaws can do so without knowing what this monograph contains. The bibliography is complete and in chronological order. Dr. (afterwards, Sir) Jonathan Hutchinson's prefatory remarks leave nothing to be desired for lucidity, suavity and effectiveness.

Few examples of so complete a demolition of the principal work by its "Prefatory Remarks" will be found in the literature of medicine. Dr. Hutchinson did this too with such admirable reserve, such Christian charity, that Numa Rat never realized "what hit him."

VI

The sixth adversary is Doctor (afterwards Sir) Patrick Manson. The first edition of his classic on

PLATE 15. Clinic at Mirebalais, Haiti. The natives of Haiti attended rural clinics in large numbers. 70 to 80 per cent in some sections gave evidence of syphilis. A few would have the fungating lesions. Many would show positive Wassermann tests, and other evidences of lues. It is manifestly impossible to select those fungating cases and call them yaws and distinguish others as syphilis. So "framboesiologists" consider *all natives* as suffering from yaws and forget about syphilis (Rulx Léon).

PLATE 16. A Filipino family affected with yaws.

Tropical Diseases made its appearance just before the turn of the 19th century. Here is its title page:

Tropical Disease. A Manual of the Diseases of Warm Climates. By Patrick Manson, M.D., LL.D. (Aberd.) Fellow of the Royal College of Physicians, London; Physician to the Seamen's Hospital Society, attached to the Branch Hospital; Lecturer on Tropical Diseases at St. George's Hospital and Charing Cross Hospital Medical Schools; Medical Adviser to the Colonial Office and Crown Agents for the Colonies. With 88 Illustrations and 2 Coloured Plates. New York. William Wood & Company, 1898.

On pages 432 and 433 will be found Manson's Diagnosis of yaws.

Diagnosis.—A painless, insensitive, larger or smaller, circular, encrusted, red granulomatous excrescence, occurring in the endemic district, is almost certainly yaws. The most important point in connection with yaws, both as regards diagnosis and aetiology, is its relationship to syphilis. It has been, and is still, held by some distinguished authorities, Hutchinson for example, that yaws is possibly syphilis modified by race and climate; and certain features which the two diseases have in common are pointed to in support of the contention. The discussion is bound to continue until the respective germs of yaws and syphilis have been separated, cultivated and inoculated. So far as clinical and microscopical evidence goes, it is decidedly in favour of, not to say conclusive for, regarding the two diseases as specifically distinct. There are many points of contrast in their clinical features. I may mention the primary sore, the infection of the foetus, the adenitis, the exanthem, the alopecia, the absence of itching, the iritis, the affection of the permanent teeth, the bone and eye affections, the congenital lesions, the polymorphism of the eruptions, the nerve lesions and the gummata of syphilis. All these are wanting in yaws. Moreover, both diseases may concur in the same individual (Powell cites two cases, and Charlouis two, of syphilis supervening on yaws); and antecedent syphilis certainly does not confer immunity as against yaws. Yaws may die out in a community, as in British Guiana (Daniels, *Brit. Jour. of Dermat.*, November, 1896), yet syphilis remains; yaws may be universal in a community, as in Fiji, and yet true syphilis, whether as an acquired or congenital disease, be unknown. Finally, syphilis has never been shown to give rise to yaws, nor yaws to syphilis; neither, so far as known, has yaws been evolved in any community

from syphilis, or appeared independently where the possibility of its having been introduced from a recognized yaws centre could be excluded with certainty.

The therapeutical argument for the identity of the two diseases is a very fallacious one. Sulphur will cure scabies and pityriasis versicolor; yet from this circumstance we may not conclude that these diseases are identical. The same may be said in respect of the influence of mercury and iodine on syphilis and on yaws.

Manson's authorities for statements made in this section of his treatment of yaws will be found in "Selected Essays" above quoted. The particular one that "yaws may be universal in a community, as in Fiji, and yet true syphilis, whether as an acquired or congenital disease be unknown," was taken from "An Epitome of Dr. A. Nicholl's Report on Yaws compared with British Guiana and Fiji Experiences," by J. S. Wallbridge, Medical Inspector, and C. W. Daniels, Late Fiji Medical Service. This was printed in the "Selected Papers" which came out in 1897, just one year before Manson's first edition. On pages 256 and 257 of this report will be found a Note:

NOTE:—That syphilis is unknown amongst the Fijian natives is the experience of every medical man in that group.

Opportunities for its observation if present are good. A large proportion of the adult male population pass through gaol, for in addition to many trivial offences against native laws, fornication and adultery are punished by imprisonment. In all the larger gaols each prisoner is examined by a medical man. Adult unmarried males when indentured on plantations are under medical care and are by no means averse to lie up for most trifling sickness, and are examined then by the Medical Officers.

When a Medical Officer visits a village, it is usual for the headmen to show him all the sick, including all not working.

As regards my own experience, though acquired in a district where not only the largest number of coolies were employed, but also including two of the largest native villages and most frequented in old times by Europeans, as is shown from the number of half-castes, I never saw primary or secondary syphilis except in Europeans and East Indians, proving at least its rarity.

The experience of every medical man, including Dr. Corney, the Chief Medical Officer, who has not only had long experience,

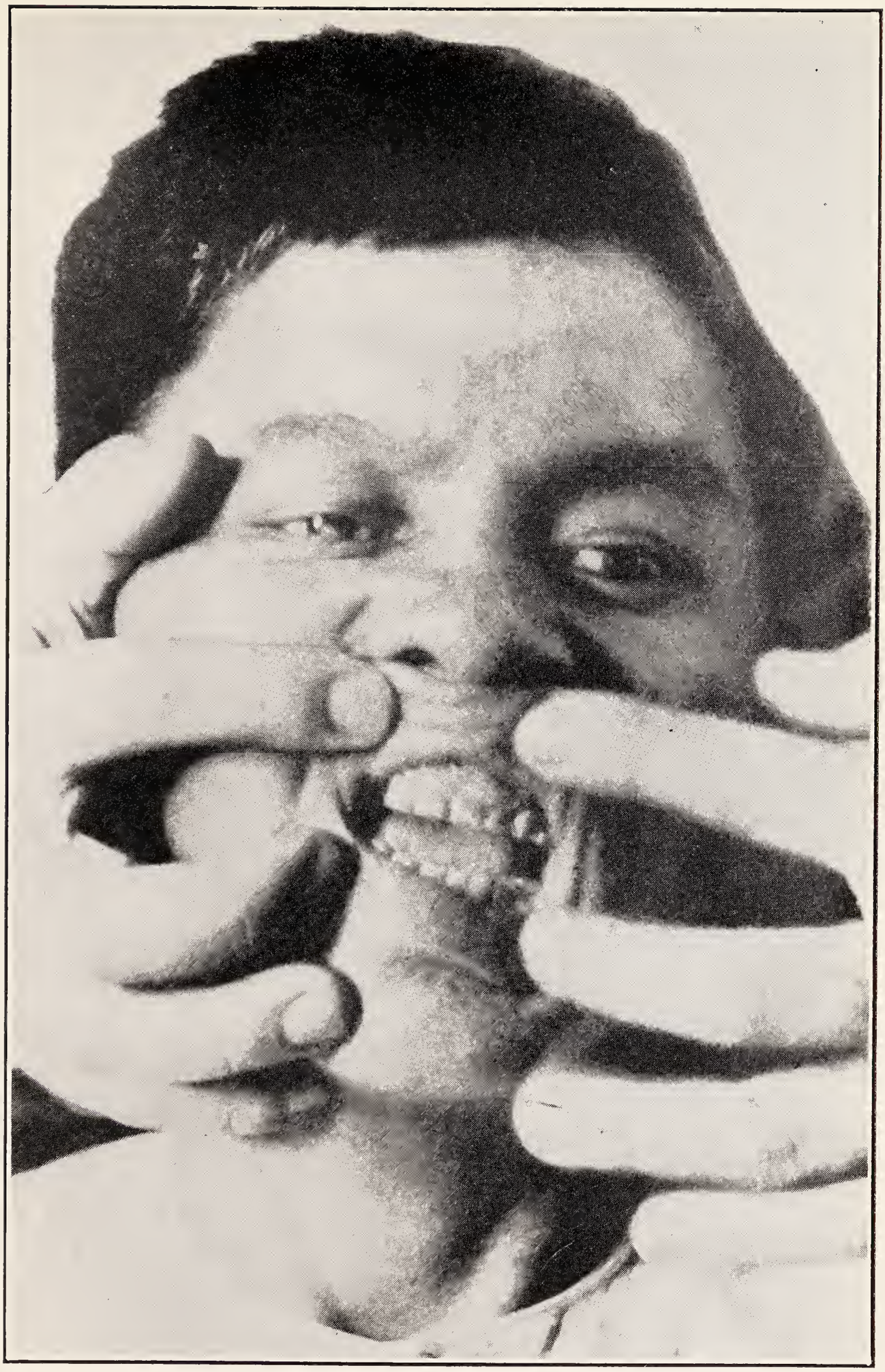


PLATE 17. A Filipino boy showing interstitial keratitis, notched teeth and scarring about the mouth. The boy had an eighth nerve deafness and therefore showed the Hutchinson triad.

but a most intimate acquaintance with their diseases, language, and customs, is to the same effect.

The native practitioners, who see in their training in the Suva Hospital cases of syphilis amongst the East Indians also, say they see nothing like it amongst the natives.

Stronger negative evidence would be difficult to obtain.

Though not a licentious race, that the Fijians have had both from Europeans and East Indians abundant opportunities of acquiring syphilis is certain, and as a speculation it was frequently suggested that the yaws were to some extent a protection, and in this connection it is especially noteworthy that in all the conclusive cases of persons being attacked with both syphilis and yaws the syphilis preceded the yaws, though as the latter is usually acquired in childhood, we should expect to find yaws precede syphilis in the larger proportion of cases. C. W. D.

It will never be known why Dr. Manson chose to take the opinions of young doctors serving at out-of-the-way stations, when he had the writings of such distinguished contributors to the medicine of Great Britain, as Thomas Sydenham, 1624–1689; Benj. Bell, 1749–1806; Berkeley Hill, 1834–1892, and Jonathan Hutchinson, 1828–1913. Each of these great physicians made contributions to the particular subject at hand which might have shown the greatest teacher tropical medicine has yet known that the less experienced physicians were wrong in the following points:

(1) that in the year 1898 there was a population on the globe capable of being reached by ships where syphilis did not exist. Since that memorable day in 1492 when Columbus turned his three pitifully small prows into the setting sun, Christian civilization has gradually inoculated all the pagan and wild peoples of the earth. Those who did not already harbor syphilis have had to take it from the Christian conquerors. Captain James Cook (1728–79) made three voyages into the Pacific Ocean (South Seas): (1) 1768–69, (2) 1772–75, and (3) 1776–79. He visited a great many island groups and in particular Tahiti and Fiji. Louis Antoine Bougainville (1729–1811), the first

French circumnavigator sailed this voyage between 1766 and 1769 visiting all the principal groups in the South Seas and particularly Tahiti and Fiji. There is not a chance in the world that Tahiti and Fiji escaped these repeated onslaughts of *Treponema pallidum* 125 years before Dr. Daniels made the observations upon which Dr. Manson made his unwarranted assertions about places where "syphilis, whether as an acquired or as a congenital disease, be unknown."

(2) Dr. Hutchinson could have told Dr. Manson that amongst the wild people who rarely cover their heads, the hair does not fall out from syphilitic disease, *even when the chancre makes its appearance upon the genital organs;*

(3) that whereas in London the incidence of syphilis with the population in general was in 1898 perhaps between ten and twenty per cent, among the "wild ones," *e.g.*, in Hispaniola it was between eighty and ninety per cent;

(4) that with cultured races syphilis is a *venereal disease,* but among the "wild ones" it is an innocent disease of childhood, usually transmitted by filth, fingers, flies and fondling, rarely by fornication;

(5) that the crime perpetuated upon the human race by M. Auzias Turenne in 1850 and called "Syphilisation," had answered all those questions flowing out of inoculation of mixed poisons either upon the infected individual or upon a healthy individual, Berkeley Hill thus describes the rationale (?) of "Syphilisation:"

> He (M. Turenne) observed that the pus of suppurating venereal ulcers could, with perseverence, be successfully inoculated for a time on certain of the lower animals, but that, after a while this susceptibility was exhausted; that is, they were, according to his views, syphilised, or in other words, that their tissues could no longer be excited or influenced by the syphilitic virus. (Berkeley Hill, Syphilis and Local Contagious Disorders, London, 1863, p. 236 et seq.).

PLATE 18. The boy shows a sabre shin and other bone deformities of the hand.

We of the present knowing the deadly possibilities of such a procedure, stand aghast at the inoculation of human beings, other than the infected one himself, with such mixed living vaccines. However, and this is the point I wished to make, this "Syphilisation fad" answered all of Charlouis', Powells', and Paulet's double infection work years before modern research threw their experiments out of count.

VII

Manson's Tropical Diseases was the writer's Bible for many years. I entered the U. S. Naval Medical Corps in 1900, literally with a copy of the first edition in my hand. I have personally owned every edition except the tenth (1936). As my experience with yaws grew from year to year, I began to see that this great teacher had jumped the track on yaws and so the final (seventh) adversary is Philip H. Manson-Bahr and his Tenth Edition of Manson's Tropical Diseases, 1936.

The following table shows at a glance the main distinctions between this disease and syphilis.

Yaws	Syphilis
Not congenital.	Congenital.
Primary sore—extragenital.	*Primary sore*—usually genital.
Secondary stage	*Secondary stage*
(a) Typical yaw pathognomonic; furfuraceous desquamation and plantar lesions characteristic.	(a) Seldom imitates framboesia.
(b) Mucous membranes not affected.	(b) Muccous membranes affected.
(c) Itching common.	(c) Itching rare.
(d) Alopecia unknown.	(d) Alopecia may occur.
(e) Eyes unaffected.	(e) Iritis common; choroiditis and retinitis rare.
Tertiary stage	*Tertiary stage*
(a) Visceral lesions absent.	(a) Visceral lesions occur, i.e., pericellular cirrhosis, gumma of liver, kidney, etc.
(b) Nervous system not usually affected.	(b) Nervous system prone to infection; tabes, G.P.I.

(c) C.S. fluid always negative Wassermann (Fisher; Turner, Saunders and Johnson).	(c) C.S. fluid usually positive Wassermann.
(d) Blood-vessels: No endothelial proliferation as in syphilis.	(d) Endarteritis obliterans of viscera-cerebral thrombosis.
Yaws better resisted. Constitutional disturbance slight great exuberance of eruption and cheloid scarring.	Syphilis attacks constitution, affecting the vital structures.
Does not respond to mercury.	Responds well to mercury.

Recent views on the syphilis-yaws question.—In Jamaica, Turner, Saunders, and Johnson record that no cardiac disease has been encountered in yaws cases, and this has been confirmed by radiographic examinations. In their critical survey of the disease as it appears in that island, they bring forward several new points. The "attack rate" in adults is found to be as great as in children, and yet nothing like congenital syphilis has been seen in Jamaican babies, and this is held as strong evidence against the identity of syphilis and yaws. Infants and children in Jamaica are more liable to infection than are adults, and 90 per cent. of cases contract the disease before they are fifteen years of age. All the female cases give definite history of having contracted the disease from their yaws-infected children.

This tabulation has been "rationalized" in an earlier part of this volume (pp. 82 & 83). With its passementerie of modernism it is like Eleventh Century Feudal Rothenberg violating the landscape of militaristic, air-minded Germany. This description uses the rationale of the humoral hypothesis with the terminology of modern medicine. Other men just as competent as Turner, Saunders and Johnson have reported cardiac disease in yaws (Choisser, "A Study based on the Review of 700 consecutive autopsies in Haiti," U. S. Nav. Med. Bull., Vol. xxvii, Nos. 3–4, July–Oct., 1929, for example). Dr. Bahr certainly will not contend that the Jamaican negroes cannot have syphilis. Well if they are susceptible to syphilis as all other human beings are then the Jamaica findings are a confirmation of the Navy's Guam experience that the stigmata of congenital syphilis with people who do not treat generation by generation are differ-

ent from those who do. They do not manifest the Hutchinson triad for example.

The Bahr discussion of yaws is one of the best examples in medical literature of the pernicious effect of hero worship in perpetuating fallacies. As a teacher of the facts and principles of medicine, particularly when his teaching affects foreign students, he should have pity upon future generations and revise his medieval romance about yaws.

"184 Columbia Heights,
Brooklyn, N. Y.
30 March, 1936.

My Dear Admiral Butler:

Knowing your interest in the yaws-syphilis question, I am prompted to tell you of my experience on a cruise made by the U. S. Fish Commission Steamer 'Albatross' in the South Seas and Equatorial Pacific Ocean, August, 1899, to March, 1900.

The 'Albatross' carried the Agassiz group of scientists in addition to the staff from the U. S. Fish Commission. I was medical officer of the ship.

May I here invite attention to the fact that this cruise antedated by more than five years Schaudinn's discovery of the specific cause of syphilis and all of the diagnostic and cultural methods and serological tests for syphilis developed after *Treponema pallidum* was discovered.

Our observations were clinical. Often it was impossible to obtain case history because of difficulties of language. Laboratory diagnostic methods for syphilis which are today routine were then unknown and we were compelled to depend upon clinical diagnosis and therapeutic test.

The 'Albatross' visited the Marquesas Islands, Paumotu Group, Society Islands, including Tahiti to Tongatabu, via Leeward, Society and Cook Groups, Niue Island, Fiji group, Gilbert, Ellice, Marshall, Caroline Islands, Guam and Yokohoma, Japan. Our course crossed that of Magellan, Cook, Bougainville and other early navigators, to say nothing of the early whalers.

In the Marquesas, Paumotu and Society Islands, there was evidence of syphilis among the population, but it was not so frequent or severe as farther to the West as I saw it. In the Tongan group, I was shown lesions which I took to be tertiary syphilis. These lesions were called "yaws" by the kindly colonial medical officer at Tongatabu. Similar lesions demonstrated to me

in Suva, Fiji, by the colonial medical officer were believed by me to be tertiary syphilis, which had been long untreated. These, to me, *syphilitics*, were said to be suffering from "yaws"; to be healed by energetic anti-syphilitic treatment; and to be immune to syphilis, so I was informed. These lesions in individuals in hospitals in the United States would have been diagnosed and treated as luetic in 1899–1900.

As we went further westward, e.g., into the Marshall, Caroline and Ladrone groups, the clinical symptoms appeared more severe than among the Polynesians; i.e., as we came nearer to Asia the mutilations became more severe—whether because of alleged greater virulence of infection from Asia—among the Melanesian population, especially those who probably had a large admixture of Malayan blood. At Jaluit in the Marshall Islands the German colonial surgeon was treating more than 270 persons daily in his clinic. The lesions healed under active antisyphilitic treatment. He gave me photographs of some of the individuals and I took others myself, as I visited his clinic daily for two weeks. Here, as in Fiji, the colonial medical officer regarded these "yaws" cases as *immune* from syphilis. Clinically, the individuals were syphilitic and responded to the therapeutic diagnostic test, i.e., their lesions healed under antisyphilitic treatment. Wherever competent medical opinion could be obtained the belief was expressed that yaws and syphilis do not coexist in the same populations, much less in the same individual.

I found British, French and German colonial medical officers diagnosing "yaws" and treating the disease with anti-syphilitic treatment (mercury and iodide of potassium)!

So on the evidence before me at that time, viz.,

(a), communicability
(b), clinical symptoms and course
(c), healing of lesions under anti-syphilitic treatment; and
(d), immunity of yaws patients from syphilitic infection,

I concluded that "yaws" is syphilis under another name, modified by climate, diet, racial inheritance, and possibly other causes.

(Signed)
James C. Pryor
Rear Admiral (MC) U. S. N. Ret.

Note from author: This is without doubt the best medical opinion on this subject for that vast area of the Pacific known as the South Seas covered by the cruises of Magellan, Cook and Bougainville.

CHAPTER VII

ARGUMENT

"Where we desire to be informed 'tis good to contest with men above ourselves; but to confirm and establish our opinions, 'tis best to argue with judgments below our own, that the frequent spoils and victories over their reasons may settle in ourselves an esteem and confirmed opinion of our own."

Sir Thos. Browne—*Religio Medici.* Pt. I. VI.

Referring to the final paragraph of the introduction to this little volume, we will give as backing up the first purpose, namely, to popularize a knowledge of the venereal diseases, an editorial by the writer, published in the *American Journal of Surgery,* New Series. Volume XXVII, No. 2, page 103, February, 1935, which is as follows:

SYPHILIS AND EDUCATION

The duty of physicians in educating the people about syphilis is perhaps less evident than with any other disease. Syphilis in its own peculiar way is the most damaging disease of the human race. It has been the cause of more deaths and more family wrecking than any other plague of man.

At the present time it is impossible to lower the incidence of syphilis in highly civilized communities. The physician is at the end of his string. In the most highly moral and cleanly communities the incidence of syphilis reaches its low water mark at about 7 per cent. Among less civilized peoples the rate goes up enormously until among primitive peoples it becomes one of the exanthemata of childhood.

The two factors which have lowered its incidence are morality and personal cleanliness. If sex morality could be made perfect or if prophylaxis could be made perfect, syphilis would disappear from the earth within about three generations. We can hardly hope that either of these measures will ever be perfect so that the duty of the physician is evident. Since he cannot by professional means lower the incidence below a certain rate, it is apparent that a new principle will have to be evolved if the rate is to be further lowered, and that principle would seem to be the teaching of the

mode of acquisition, the damage and the mode of prevention by popular means, that is to say, by the newspapers and the radio.

It is of no service to the people of the earth for doctors in their scientific discussions to tell each other how they can lower the rate of this terrible disease. They know that already, but it *is* necessary to get this knowledge to the people so that mothers and fathers may teach the family, which is the unit of government, what the human race has suffered from this disease.

When radio companies will shut off physicians as they have recently who were trying to get a message to the tax payers in regard to this matter, it shows the revolution that will have to take place before this subject can properly be handled. The pure artificiality of the position of the radio companies in refusing the microphones to health officers broadcasting educational material of this sort is shown when we recall the licentious matter that is broadcast directly and indirectly over the radio systems every day. These companies consider it perfectly legitimate to broadcast material about tuberculosis or typhoid fever or to advertise tooth paste, all of which are much less importance to the family than is syphilis.

Legalization of the sale of alcohol has made popular education in sexual diseases all the more necessary. Resorts of all kinds know the importance of alcohol in breaking down the will power of both sexes. Some of the night clubs are perfect examples of the team work between alcohol and venery. Since the beginning of time Bacchus and Venus have danced together.

It would seem that the only way this problem can be solved is by the concerted action of the medical profession in prevailing upon newspapers and radio corporations to broadcast material of this character when it has the sanction of city, state or federal authority.

In regard to the second declaration of the purpose of this volume, namely, to expose the fallacy of the American-origin-of-syphilis-hypothesis, we will summarize the reason for this hypothesis as follows:

Because of the light it throws upon human pathology in ancient times, syphilis is historically *the* most important of diseases. The hypothesis of its American origin is based on the following points:

(1) Early desire of European nations to escape the supposed ignominy arising from its usual venereal mode of acquisition.

There is no ignominy on the part of any nation in being afflicted with a disease, as shown in the body of this work. Syphilis among primitive people is an innocent disease of childhood, and it is only the care as to treatment and cleanliness of enlightened races which makes it a venereal disease.

(2) Assurance of certain "authorities" that there was no clinical evidence of syphilis in pre-Columbian Europe.

(3) Assurance of the "authorities" that the best osseous evidence of syphilis was from pre-Columbian America.

(4) "Authority's" circumstantial account of the introduction of syphilis into Europe upon the return of the *first* voyage of Columbus.

As a matter of historic fact, there is far more evidence of European syphilis in pre-Columbian times, than there is of American syphilis in pre-Columbian times, for we have not only the bony evidences of it in pre-Columbian Europe, but we have much clinical, therapeutic and pathological evidences of it. Two of the pathological points of evidence as spoken of in the text are the known existence of aneurism of the great thoracic vessels in ancient times, and the presence of ulcerating rhinopharyngitis, called gangosa, and then the writings of F. Buret, Sudhoff, and Holcomb have made the circumstantial account of Columbus' introduction of syphilis into Europe upon the return of his first voyage look like the silly sophistry it is.

In order to bring forward the reasons for believing in the identity of so-called yaws and syphilis, we will quote from an article published in the *International Clinics*, Vol. II, Series 40, the part on Diagnosis and Treatment of Yaws, called "Yaws Catechism," which will summarize the several different reasons why there can be no doubt about the identity of these conditions:

Q. If yaws is syphilis, why is it not congenital?

A. Yaws *is* congenital and the statement that it is not is due to (a) insufficient observation, (b) to the fact that sometime between 1763 and 1850 congenitalism in yaws was thrown out of the definition of framboesia so that cases showing congenital deafness, notched teeth and interstitial keratitis (Hutchinson's triad) were excluded from the diagnosis of yaws by definition. In this connection refer to the papers of Rulx Leon[2] and Wilson and Mathis.[4]

Q. If yaws is syphilis, why is the initial lesion usually extragenital?

A. Yaws is usually innocently acquired and its initial lesion then selects an extragenital location just as with innocent syphilis.

In case of an infected man "tampering" with a female child under the superstitious belief common among negroes, that to make contact with the genitals of a virgin will cure the "runnin' range," the innocent chancre may actually be on the pudenda of the female child.

Among filthy people subject to overcrowding, syphilis is predominantly innocent. "*Extragenital chancres.* The contagion of syphilis, although usually spread by normal sexual intercourse, is not necessarily so transmitted; and the primary lesion is by no means always found on the genitalia. In certain regions of Russia, for example, where there are no physicians and where the most wretched hygienic conditions prevail, syphilis, is, in 70 per cent. of the cases, transmitted by extragenital contagion. In these districts there are few, if any, prostitutes, and 'rural syphilis in Russia is first and foremost syphilis of the innocent.' " (Osler's Modern Medicine, 1st Ed., Vol. III, page 455.) By changing the name Russia to Haiti, you here have a perfect description of what prevails in hundreds of rural communities in the Black Republic, the modern home of yaws. In connection with extragenital chancres, reference is made to Bulkley's work[3] and to the paper of Wilson and Mathis.[4]

Q. If yaws is syphilis, why does it seem to be a disease of childhood?

[1] "Immunological Relations between Yaws and Syphilis," by Otto Schöbl and Isac Miyao. The Phil. Jour. of Science, vol. 40, No. 1, September 1929.

[2] "Hereditary Yaws," by Rulx Leon. The American Journal of Tropical Medicine, vol. ix, No. 6, November 1929, pp. 439–443.

[3] "Syphilis in the Innocent (Syphilis Insontium)" by L. Duncan Bulkley, A.M.M.D. Bailey and Fairchild, New York, 1894.

[4] "Epidemiology and Pathology of Yaws. A Report Based on a Study of 1423 Consecutive Cases in Haiti," by Paul W. Wilson, Lieut. Comdr. (MC) U.S.N., J.A.M.A., vol. 94, No. 17, April 26, 1930, p. 1289.

A. This is a corollary of its innocence of transfer, for primitive syphilis *is* a disease of childhood. This explains several other facts about the so-called yaws: (a) a child infected at six months of age from the contagion being brought to it from without the family, may, when the mouth lesions develop, infect its own mother's breast. Thus is explained cases of apparent disregard of yaws, for the so-called laws of Colles and of Profeta: (b) A female child thus infected at six months, will, when she becomes of sexual age, say at fifteen years, have her infection in one of four positions, (1) cured, (2) latent, (3) in late secondaries, (4) in the tertiary stage. In any one of these four positions the virus has less chance of tainting her offspring than if she has a sexually acquired syphilis in the early secondary stage. This explains the *relative* infrequency of congenital framboesia.

Q. If yaws is syphilis, why does mercury not cure it and why does salvarsan have so much more marked effect upon it?

A. Mercury *does* cure it. Winterbottom in 1803 states that it is "carried off" with mercury to the point of mild salivation. Salvarsan does *not* have any more marked effect upon yaws than upon neglected cases of syphilis. Symptoms are the resultant of the reaction which take place between the infective agent and the host. Of two men acquiring syphilis from the same source, one will progress steadily to his death in spite of all treatment while the other will put up such a fight that his infection may be cured without treatment, or rendered latent through a long life. As nearly as can be determined, the relative value of mercury, bismuth and organic arsenicals in the treatment of treponematosis is as 4 to 7 to 10 respectively.

Q. Why does yaws fail to show vascular diseases and gummata of the internal organs?

A. This was an incorrect observation, for yaws does cause aneurisms and internal gummata. Such immunity as nature can bring to bear where no therapeutic measures are taken to cure the infection, nature brings to bear; so that individuals with untreated framboesia, just as with untreated syphilis, develop a high degree of tolerance to the infection. This tolerance may amount to an actual cure or the resistance of the host to the infection may just about balance it, so that symptoms are held in abeyance. On the other hand, the tissues of the host may undergo septic infection very much more easily than is the case with a non-infected person. Hence the mutilations such as gangosa.

Q. Why do we not see yaws in temperate climates?

A. We do see it and that without any contact with a case similar to yaws. For a hundred and more years these cases have

been reported in the literature of temperate climates. Cases of a condition exactly simulating yaws are not at all infrequently published at the present time. Howard Fox[5] and many others have reported such cases in the literature. A typical case from the Royal Infirmary, Edinburgh, was published in the London *Lancet* of 1828[6] and there are hundreds of cases published since. The syphilologists therefore recognize a type called syphilis framboesiformis. The more cleanly the race and the better the antisyphilitic treatment administered to a population, the rarer is this manifestation.

Q. Why does the initial lesion of yaws differ so markedly from the appearance of the Hunterian chancre?

A. Osler says that about 8 out of 90 to 100 chancres are extragenital, and that the characteristics of extragenital chancres are that they are less likely to manifest induration, more given to phagedena and oedema. He describes a respectable variety of types of initial lesion and quotes Colles in the following words: "In the early part of my life, I thought I could tell what was a chancre, but I am now convinced that a primary venereal ulcer may *begin* in any possible form of ulcer." So it is with the initial lesion of yaws. As this usually occurs in filthy people, often upon the delicate skin of children, phagedena, great oedema and even gangrene may occur in connection with it. The writer has seen, however, several initial yaws lesions, which showed the induration typical of the Hunterian chancre. The fact that the initial framboesial lesion often begins in the scar of a former wound lends support to the observation of Wilson and Mathis[4] and of Hunt and Johnson[7] that insects often inoculate the virus by the contaminative method.

On page 30 of Bulkley's book[3] there are tabulated 9058 extragenital chancres in syphilis. In the pages following that, he describes the characteristics of many of these extragenital chancres. In these descriptions there is suffiicent variety of symptomatology noted to cover all the types of initial yaws lesion described by the most "meticulous framboesiologists."

Q. Does yaws infection immunize to syphilis?

A. Yes, it does so both in the human being—(Wilson and Mathis[4])—and in the Philippine monkey, *Cynomolgus philippensis,* see Schöbl.[1]

[5] "The Prevalence of Yaws (Framboesia Tropica) in the United States," by Howard Fox, M.D. Archives of Dermatology and Syphilology, vol. 6, No. 6, December 1922.

[6] "Lancet." March 8, 1828 (Royal Infirmary, Edinburgh. Framboesia).

[7] "Yaws, A Study based on over 2000 cases in American Samoa," by Daniel Hunt, Lieut. Comdr. (MC) U.S.N. and A. L. Johnson, Lieut. (MC) U.S.N. U. S. Naval Medical Bulletin, vol. xviii, No. 5. May 1923, pp. 599–610 incl.

Q. Why may not some of the experimental animals be depended upon to give a correct answer to our question, "Is yaws syphilis?"

A. Because (a) no experimental animals, so far tried, give reactions comparable to those of man in response to inoculations of the virus. Schöbl was using, not pure culture of the *Treponema,* but a highly contaminated virus. How can we judge what the *Treponema* will do in the way of producing symptoms or immune substances when we've inoculated a variety of antigens together with the framboesial antigen? (b) Every time a new animal is substituted for man, the several reactions of this particular animal must be worked out. The mouse is infectible with *T. pallidum* but shows no symptoms and we must inoculate some other animal from this mouse in order to ascertain that it really has been infected. There are so many complicating factors here that the problem should be reduced to its simplest terms. These simplest terms would be met by using pure cultures of the supposedly different treponemata and man as the experimental animal. We will not succeed here until we have certain factors which are constant and fixed. The problem cannot be solved by constantly changing our base line. The work of Jahnel and Lange[8] upon general paretics, using cases of disseminated sclerosis as controls and *T. pertenue* as virus, has proven that *T. pallidum* immunizes to *T. pertenue.*

Q. Have any economies been effected in handling native people by considering that there is only one virus involved here?

A. Yes, In Guam, Samoa, and Haiti the greatest possible good has come from it. In all three countries epidemic syphilis (yaws) is decreasing markedly in its incidence.

In Guam, within the experience of Medical Officers of the navy who have served twice in this island, conditions are markedly improved as seen recently over what was the case twelve or fourteen years ago. There are no more gangosas developing, early yaws cases are extremely rare and the percentage of the population tainted with endemo-epidemic syphilis has decreased. Epidemic is being converted into venereal syphilis, so that native sailors on the station ship there have, in some instances, been able to acquire venereal syphilis on the periodic visitations of the ship to Japan or Manila. It will soon be within the power of any native of Guam to "look any man in the face and tell him he has acquired his

[8] Jahnel, F. and Lange, J.: "Syphilis und Framboesie im Lichte neuerer experimenteller Untersuchumgen." (Syphilis and Yaws in the light of recent experimental work). Klin. Woch., 1928, November 4, vol. 7, No. 45, pp. 2133–2140 (30 refs.), (German Research Inst. for Psychiatry, Munich). This is well briefed in Trop. Dis. Bull. vol. 26, No. 3, March 1929.

syphilis in the usual way." This is but saying that the standards of personal hygiene have been elevated along with those of general hygiene and sanitation. The population of Guam has increased from 10,500 in 1898 to 16,938 in 1926.

Q. Does the unity concept explain the epidemiology of yaws?

A. Yes, and it is the only concept that does *wholly* explain it. If we try to explain the epidemiology upon the basis of the yaws virus being distinct, then we hoist an epidemiological monstrosity not duplicated in the whole range of medicine for we have a virus that will infect a black man but not a white one; a virus that confines itself rather rigidly to certain races and to certain geographic latitudes and yet which idiosyncratically may appear in other populations thousands of miles from its endemic home, as in Edinburgh, New York, Berlin or Quebec. These sporadic yaws cases usually make their appearance "out of the blue" so to speak, with no contact with a similar case. Then, too, how can we explain a contagious disease which will infect a country dweller but not a city one, or which will disappear from a population when there is still pabulum to work on, for there is no natural immunity to *T. pertenue* so-called.

Q. If yaws is syphilis, why is there so little tabes dorsalis and general paralysis of the insane among the natives who suffer from yaws?

A. This looks like a "knock-out" for the dualists, but upon close investigation we find that venereal syphilis among native peoples acts in the same way. There may be various affections of the nervous system of backward races suffering from syphilis which we may class as cerebrospinal syphilis (and this is equally true of the so-called yaws), but frank tabes dorsalis and G. P. I. are rare. This variation has engaged the serious thought of many investigators. One of the best studies in this subject is that of Lieutenant-Commander R. P. Parsons, U. S. Navy.[9] This investigator, whose study was made in Haiti, where malaria is widespread, invoking the principle discovered by Wagner-Juaregg[10] on the value of malaria infection in stopping the course of G. P. I., explained the rarity of the two conditions mentioned by the malaria infection of the native population. When it was pointed out to Parsons, who had never served in the East, that in Samoa and Guam where no malaria existed because of the absence of

[9] "Spinal Fluid in Tropical Syphilis," by R. P. Parsons, Lieut. Comdr. (MC) U.S.N., U. S. Naval Medical Bulletin, vol. 26, No. 4, October 1928, pp. 916–922 incl.

[10] "The Treatment of General Paralysis by Inoculation of Malaria," by Professor Dr. Wagner-Juaregg. Jour. of Nervous and Mental Disease, vol. 55, No. 5, May 1922.

Anopheles, that there was this same absence of tabes and G. P. I., he agreed that this explanation would not serve.

The best explanation of this queer finding known to the writer is the following: It was an observation of Fournier, I believe, that severe dermic cases of syphilis were rarely followed by tabes and G. P. I. Often the mild case of syphilis taking a small amount of treatment was the victim of one or the other of these manifestations of syphilis of the nervous system.

Now the skin and the nervous system are developed from the same embryonic layer. It is reasonable to think that when the skin is heavily beset, as in these cases with severely complicated syphilides, nature produces all the antisubstances she can in response. When we recall that native syphilis is not only severe on the skin, but is rarely treated, we are prepared to understand that all the antisubstances which the host can produce in response to the mixed antigens *have been produced,* for nature has "trodden the wine-press alone." Now the crux of this present explanation is that these antisubstances are sufficient to protect the skin's kindred tissues, the brain and cord against the nervous sequelae of treponematous infection. The matter of neurotropic and dermatotropic strains of *T. pallidum* and their selective action is made to look absurd as an explanation when it is recalled that the populations of Haiti have been mixing strains of treponemata for over 400 years now and yet the present poulation is relatively free from tabes and G. P. I.

From what has gone before we may define yaws in the following terms: Yaws is epidemic non-veneral syphilis transmitted innocently among primitive peoples, and under stone-age conditions of personal hygiene constitutes one of the exanthemata of childhood. It is then called yaws, framboesia, pian, bubas and so on, variously, accordingly to the race and language of those affected.

Q. How is yaws treated?

A. By reason of its epidemic occurrence, yaws or primitive syphilis as we will hereafter call it, is transferred by other contacts than sexual ones. This at once indicates that preventive measures (continence and cleanliness) which are effective in ordinary syphilis are out of place here. Why preach continence to a population so ignorant and so filthy that syphilis has already changed its mode of transfer from the venereal route to the innocent one? They wouldn't know what you are talking about in the first place and in the second the family means are so limited that they are not sufficient to enable the poor creatures to carry out any instructions that are given. The treatment of a population so depraved that it is under the blight of primitive syphilis therefore becomes a matter for the state.

DRAMATIS PERSONAE

"Never take authority when you can have
fact, never *think* when you can know."
O. W. Holmes. . . . I *think*

* The first appearance of a name in the text is the only page entry for that name even though it may occur several times.

GLOSSARY

The definitions given here are taken mostly from the 17th Edition of the American Illustrated Medical Dictionary, by W. A. Newman Dorland. This dictionary is a storehouse of information about medicine.

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BOCOR. Haitian voodoo doctor. John Brickell states that certain Indians who had lost their noses became doctors. He calls them "no-nose" doctors. The same thing holds in Haiti for the bocors. These voodoo doctors showing some deformity, such as a mutilated face, use this as evidence of their skill in voodooism 40

BORDET-GENGOU PHENOMENON. Fixation of the complement: when antigen unites with its specific antibody, complement, if present, is taken into the combine and becomes inactive or fixed. Its presence or absence as free, active complement can be shown by adding sensitized blood cells or blood cells and hemolytic amboceptor to the mixture. If free complement is present, hemolysis occurs; if not, no hemolysis is observed. This reaction is the basis of many tests for infection, including the Wassermann test for syphilis, and reactions for gonococcus infection, glanders, typhoid fever, tuberculosis, etc. Called also *complement fixation* and *Bordet-Gengou phenomenon* 46

BOSS. A rounded eminence as on the surface of bone 76

BOTCH. Biblical term indicating boil or ugly spot 38

C.S. FLUID. Abbreviation for Cerebrospinal fluid 110

CALLOUS. Hard; like callus 18

CARIES. Decay of bone in which it becomes softened, discolored and porous 18

CATHARSIS. Freud's treatment of psychoneuroses, by "purging" of the mind 1

CHANCROID. Local venereal ulcer 10

CHAUDE-PISSE. French term for gonorrhoea 31

CLAP. Vulgar name for gonorrhoea 21

CLIMATIC BUBO. Form of adenitis of the lymph nodes of the groin occurring principally in tropical countries . 21

COLLES LAW. A child that is affected with congenital syphilis, its mother showing no signs of the disease, will not infect its mother (1837) 117

COLLAGEN. Main organic constituent of connective tissue and of the organic substance of the bones; changeable by boiling into glue or gelatin 42

COLLOIDAL. Glutinous, or resembling glue 84

COLUMELLA. Same as uvula 17

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CONDYLOMA. Wartlike excrescence near the anus or vulva; especially the flat moist papule of secondary syphilis 14

CORONA VENERIS. Red syphilitic sores around the forehead, sometimes deeply affecting the bones of the head 4

DACTYLITIS. Inflammation of all the tissues of a finger or toe 81

DERMA. The skin, especially the corium, or true skin 86

DESQUAMATION. Peeling 101

DIAPHORETIC DECOCTION. Boiled solution of a drug which will produce sweating 99

DIPHTHERIA. An acute infectious disease due to the presence of the Klebs-Löffler bacillus, *Corynebacterium diphtheriae* 21

DISTEMPER. Derangement of the "humour" or "temper" (formerly regarded as due to disturbance in the bodily "humours") 38

DYSCRASIA. Depraved state of the humours 16

DYSPNOEA. Difficult breathing 17

ECTODERMOTROPIC. Having a tendency to affect the upper layers of the skin 97

ELEPHANTIASIS. Chronic disease characterized by inflammation and obstruction of the lymphatics and hypertrophy of the skin and subcutaneous tissues 21

ELEPHANTIASIS ARABUM. True elephantiasis, result of infection with the filarial worm, *Wuchereria bancrofti* 63

ELEPHANTIASIS GRAECORUM. Synonym of leprosy 36

EMBRYONIC. Pertaining to or in the condition of being an embryo 121

ENDEMO-EPIDEMIC. Constantly occurring in the population, inclined to rise into epidemics 38

EPIDEMIOLOGY. Science of epidemics 35

EPIGLOTTIS. Lidlike structure which covers the entrance to the larynx 17

EROSION. An eating away (ulcer) 19

EXOGAMY. The custom by which a man is bound to take a wife from outside his own clan or group 2

EXOTIC. Alien, not indigenous 68

FACIES. Latin for face 76

FAUCES. Passage from the mouth to the pharynx 19

FIBROUS STROMATA. Fibrous framework or matrix of an organ 42

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FICOSA. Ficus, the Latin name for fig. A term used by the Romans to describe what we call the flat condyloma because its corrugations look like the skin of a fig. Martial in the reference used in the text, "De familia ficosa," refers to the great contagiousness of this ungainly tumor, and implies that it is a disgraceful possession. At several places in his epigrams, he refers to this condition. In the Loeb Classical Library edition of Martial, the following references to conditions which resemble syphilis will be found: Book 1, LXV; Book, 3, LXXI; Book 4, LII; Book 4, Epigram IV, refers to the stench of a gangosa patient; Book 7, LXXI is the De familia ficosa epigram; Book 14, Epigram LLXXXVI. The translation I use is from the physician's point of view. Instead of tuberous, I use the word "figged," for "wen," tumor, and for "tubers" figs 14

FILARIASIS. Infection with filarial worms 69

FISSURE. Crack 80

FLIES. Flies carry infection in three ways. First, in a contaminative way upon the feet and mouth. Second, by the habit some flies and gnats have of vomiting before they take in food material. Third, by actually biting, sucking blood and developing the virus in their own bodies before inoculating it into a new host. The house fly is *not* a biting fly. A gnat, *Hippelates pallipes* Loew often transfers yaws in tropical countries 118

FLOCCULATION. Coagulation in small particles. The application of colloidal principles in tests for syphilis . 84

FRAMBOESIA. Same as yaws 44

FRAMBOESIFORMIS. Like a raspberry 118

FRAMBOESIOLOGIST. An "authority" on yaws. Varieties: the *touristship* one acquires his knowledge of framboesia on a voyage to the tropics and, returning home, writes about it through a long and happy life; the *library one* acquires his knowledge in a library usually and "tells the world" what it is like; the most *sinister* of them is the serious student who thinks he "has something" in yaws, and transfers his opinions to medical students in terms of science 84

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PALATE. Soft palate is the musculomembrane from which the uvula hangs which closes off the posterior nares in swallowing. It is attached to the hard palate which forms the bony roof of the mouth and the floor of the nose 17

PAPILLOMATA. Warts 43

PARASYPHILITIC. Following in the wake of syphilis; G.P.I., tabes dorsalis and cerebrospinal syphilis are called parasyphilitic affections 28

PARESIS. Synonym for G.P.I. 28

PATHOGNOMONIC. Clinching the diagnosis 109

PELADE. 16th century synonym for syphilis 34

PERIOSTITIS. Inflammation of the periosteum (vascular envelope of bones) 72

PERIWIG. Same as wig 34

PESTILENTIAL. Producing, or tending to produce, pestilence; noxious, to life or health; pestiferous 17

PHAGEDENA. An eating ulcer 118

PHARYNX. Musculomembranous sac connecting the posterior nares, esophagus and mouth 17

PHLYCTENAE. Blisters made by a burn; small, bladder-like pustule containing lymph or thin ichor 18

PHOTOMICROGRAPH. Photograph of microscopic objects . 44

PHTHISIS. Wasting 81

PIAN. Same as framboesia and yaws 33

PITYRIASIS VERSICOLOR. Discolored spots on the back or chest due to a mould 106

PLANTAR LESION. Lesion on the bottom of foot, called the plantar surface of the foot 109

PLASMA CELL. Tissue cell with a large usually eccentric nucleus and small amount of surrounding cytoplasm 42

POCKY. Having the pox 19

POLYADENITIS. Inflammation and enlargement of many lymph nodes (glands) 66

POLYMORPHISM. Having many forms 105

POLYNUCLEAR CELL. Blood cell with several divisions of its nucleus. Chief cell to increase (leucocytosis) in septic infections 42

POLYPOUS. Of the nature of a polyp 18

PORRIGO. Ringworm or other disease of the scalp 13

POX. Disease producing a pockmark. The *great* pox is syphilis, the *small* pox, variola 66

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SALIVATE. Untoward effect of mercury upon the mouth when taken in excessive amounts 39

SARCOMATA. Plural of sarcoma, a malignant growth 18

SCHERLIEVO. Contagious disorder formerly prevalent in Illyria and Dalmatia; supposed to have been syphilis 38

SCHISTOSOMIASIS. Infection with one of three species of *Schistosoma, S. haematobium, S. mansoni* and *S. japonicum* 63

SEQUELA. An after effect 18

SIBBENS. Ulcerative disease prevalent in Scotland during the time of the Protector 37

SLOUGH. Dead tissue, bone or soft tissue, that must be thrown off before healing 17

SONG ABOUT A GUINEA NEGRESS. A "pornograph" of slave days. My "prudish hand" refuses to write the words 64

Spirochaeta. Genus of spiral-shaped organisms classed by different protozoologists as among the bacteria or among the protozoa 46

SPRAYING. Epidemiological term referring to the spraying out of infectious material by talking, coughing, sneezing, etc. 4

SQUAMOUS. Scaly or plate-like 43

STIGMATA. Indications of any disease or condition; stigmata of congenital syphilis are many, among them is the so-called Hutchinson's triad, which consists of notched teeth, interstitial keratitis and eighth nerve deafness 76

STRATUM CORNEUM. One of the layers of the skin 42

SUBLIMATION. In the Freud sense, a term for the process of deviating sexual motive power from sexual aim or objects to new aims or objects other than sexual 1

SUDORIFIC. A medicine which will produce sweating 80

SYCOSIS BARBAE. Barbers itch; it is due to a mould 13

SYKOSIS. From the Greek (σῦκον) meaning fig 13

"SYPH," THE. Argot for syphilis v

SYPHILOID. Like syphilis 38

SYPHILISATION. Fad of the period 1850–1870, in which material from venereal sores was inoculated either into the individual himself or into others for the purpose of "exhausting" the syphilitic pabulum and thereby curing the patient 108

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TABES DORSALIS. Disease of the spinal cord due to syphilitic involvement of the small blood vessels in its posterior columns 28

TERMINOLOGY. Terms used in any branch of science; medical terminology includes all of the terms of medicine, for instance, "treponemoma" signifies a tumor due to *Treponema;* Treponematosis indicates infection with the treponemata. The scientific name *Treponema pallidum* is a nomenclatural name and is governed by the code of zoological nomenclature. It is, therefore, the only proper term for the organism of syphilis 20

THEORY. In the Freud sense, hysteria is due to a psychic trauma which was not adequately reacted to when it was received, and remains as an effect memory 1

TREPONEMATOSIS. Infections from all forms of treponemata 18

TREPONEMOMA. Same as syphiloma; the same as gumma.. 44

UNICITY. Another term which refers to unity xii

UNITY. In the sense used in this book means that infective agents of yaws and syphilis are identical xii

VAN SWIETEN'S SOLUTION. A solution of corrosive mercuric chloride in 100 parts of alcohol and 900 parts of water. This solution was very popular in the treatment of syphilis in the latter half of the 18th century 81

VENERY. Indulgence of sexual desire 114

VOMER. Small triangular bone which is chief support of the bones of the nose 18

VOODOOISM. Body of superstitious beliefs and practices, including sorcery, serpent worship and sacrificial rites, current among negroes and persons of negro blood in the West Indies and Southern United States, ultimately of African origin 65

XEROPHTHALMIA. Eye condition due to deficiency of fat-soluble vitamin "A" ..... —

YAWS. Synonym of framboesia, amboyna pimple, treponematosis, bubas, pian, epian, etc ..... *Title page*

YAWY. Adjective for yaws 101

ZITTMAN'S DECOCTION. A decoction of sarsaparilla, calomel, cinnabar, alum, senna, licorice, anise seed, and fennel. It is used in syphilis. Johann Friedrick Zittmann, German physician (1671–1757). This

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prescription has been used by quacks and "blood purifiers" ever since Zittmann's day ..... —

ZANZIBAR. Zanzibar Island, 640 sq. miles, lies near the 18th meridian of East Longitude and five degrees South of the Equator. Population 115,000. The City of Zanzibar has a population of 35,000. Zanzibar was one of the world's leading slave trading centers and slavery continued there until very recent times. In this wicked town, many a poor wretch has been handed the works, venereally speaking, to "the typical tune of Zanzibar" 65


LORD GOD OF HOSTS, BE WITH US YET, LEST WE FORGET - LEST WE FORGET.